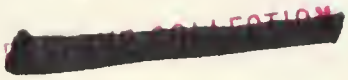

A History of Biology

ON THE CAMPUS OF EASTERN KENTUCKY UNIVERSITY 1874-1974

H. H. LaFuze
Oct. 2, 1978

Dr. H. H. LaFuze
Professor of Biology

University Archives
Eastern Kentucky University
Richmond, Kentucky 40475
1978

A HISTORY OF BIOLOGY

ON THE CAMPUS OF

EASTERN KENTUCKY UNIVERSITY

1874 - 1974

Dr. H. H. LaFuze

Professor of Biology

Eastern Kentucky University

University Archives

Eastern Kentucky University

Richmond, Kentucky 40475

1978

DEDICATION

The author dedicates this account of the development of biological science on the campus of Eastern Kentucky University to his beloved wife, DeEtte, who at times endured the absence of a father to their two daughters, Verena and Mary Jo, and of a husband who felt the necessity to work on many holidays, week ends and at nights for the department and the university.

PREFACE

This account of origin and development of biological science on the campus of Eastern Kentucky University is attempted on the eve of the one-hundredth anniversary of the founding of the campus and Central University, the ninety-fourth anniversary of the teaching of the first course in biological science on the campus, the sixty-eighth anniversary of the founding of Eastern as an institution, the fifty-second anniversary of Eastern becoming a college, and the eighth anniversary of Eastern becoming a university.

This history is written from the point of view of a faculty member who had also served as a departmental chairman for a number of years. Motivation comes to the author as he realizes the time for retirement is approaching and as he looks back for more than a third of a century and recalls students, faculty and experiences--all of which helped to make Eastern great.

To eulogize or to criticize any person, deed or principle is not in intent of the author in this dissertation. However, oftentimes the views among the members of the teaching faculty and between the faculty and administration are quite different, and when so, the chairman is invariably caught in a cross fire of opinions, desires, accusations or hear-says. A few of these incidents are included in the following pages to furnish some insight into some of the experiences of and situations faced by a departmental chairman or by a teaching faculty member—but these are parts of the history of development.

The author is aware of the discrepencies in facts among the different sources of information, and also an incompleteness of some of the records. He apologizes for any omissions, errors or misrepresentations that may exist.

H. H. LaFuze, Ph.D.
Professor of Biology
June 1974

ACKNOWLEDGEMENTS

The author is grateful to all of those who made it possible for him to make use of the following resources.

Eastern Kentucky University Archives
Central University Catalogues
Eastern Kentucky Reviews
Three Decades of Progress, 1936
Five Decades of Progress, 1956
S.A.C.S. Departmental Self-Study, 1965
S.A.C.S. Departmental Self-Study, 1974
Schedules of Classes
Records from the Office of Registrar
Minutes of the Board of Regents
The Milestones
The Eastern Progress
Files from the Office of the Department of Biological Sciences

He also appreciates the Eastern Kentucky University Archives for advice and help toward producing this book.

CONTENTS

1. BEFORE EASTERN

1874 - 1906

The institution which is now known as Eastern Kentucky University was preceeded by another institution which was also located on the present campus. The original institution was Central University founded in 1874 at Richmond, Kentucky, then a town of 3000 population, under the jurisdiction of the Southern Presbyterian Church and following a split from Center College founded in Danville in 1819. The university was housed in University Hall in the center of the present campus. The first catalogue of Central University was published in 1875. Originally the University consisted of the College of Letters and Sciences (changed to College of Philosophy, Letters, and Sciences in 1875-76), the College of Law in Richmond, and the College of Medicine in Louisville. A College of Dentistry was added in 1876. There were ten faculty members in the College of Letters and Sciences only one of whom taught natural science--J. A. Cabell was Professor of Physics. In 1901, Central University was moved from Richmond to be rejoined with Center College at Danville, to form Central University of Kentucky, later renamed Center College. At this time there were four buildings, Centennial Memorial Hall, University Building, the preparatory school and a Y.M.C.A. building. These were dedicated to a Collegiate Institute which prepared students for the junior class of Central University of Kentucky.

The first science offered at Central University was in the Department of Physics and Natural Sciences. Juniors took the first course concerning the

properties of matter and general physics while the seniors studied chemistry, geology, and mineralogy. Between 1874 and 1880 there is no reference in the University catalogue to any form of biology being taught in Central University. A Department of Mineralogy and Geology was added in 1875-76 with Mr. Cabell as the professor.

In 1880-81, a Department of Physiology was introduced in the College of Philosophy, Letters and Science of Central University with Dr. A. Wilkes Smith as lecturer in Physiology. Dr. Smith was a native of Ohio and had degrees from the Pennsylvania College of Dental Surgery (1870) and Hospital College of Medicine in Louisville (1884) which was a part of Central University. A catalogue description of the course, Lectures in Physiology, in 1880 reads:

> "The minute structure of the tissues of the body, together with the laws which govern them, will be fully considered. The course will be illustrated by diagrams, preparations and experiments."

The text was Brown: Physiology and Hygiene. In 1882-83, the general catalogue mentions that Bock-Steger anatomical and physiological models of the human body had been procured for the course and that the text was changed to Dalton: Physiology and Hygiene. This year was the first for a prize award in Physiology, made by Dr. Smith to W. T. Tyman. In later years this award became known as the A. Wilkes Smith Prize for the best notes on the course, Lectures in Physiology.

In 1883-84, the Department of Mineralogy and Geology under Dr. Jas. Lewis Howe, Ph. D. (also professor of chemistry and physics) offered an Advanced Course in Geology which included "the study of the elements of Botany, Biology, Mineralogy and Geology." Reference books in biology were Gray: Manual of Botany and Huxley: Biology.

By 1886 the Department of Geology offered one semester of Botany and one semester of Zoology using Gray: Manual of Botany and Orton: Comparative

Zoology as texts in these courses. Classes met for two one-hour periods each week. In the senior year, a student who had completed these courses could enroll in Intertebrate Zoology or Comparative Zoology. First mention is also made in the 1886-87 Catalogue of the expansion of the teaching facilities in the Department of Physiology.

> "Arrangements have been made to provide a well-equipped dissecting room for the purpose of carrying out experimentally the subject matter of the course. Dissections will be made, to illustrate the field of comparative anatomy and physiology. Practical work with the microscope will be included."

The degree of Bachelor of Science was awarded to those students who completed courses in Mathematics, Chemistry, Physics, Geology, Rhetoric, English, Ethics, Christianity and Logic, Metaphysics and Political Economy, Physiology and two Languages.

The University Catalogue of 1889-90 describes the Master of Science degree as one which may be awarded to any B.S. graduate who completes one year of graduate study in Natural Science, Mathematics and Philosophy, and writes a thesis "upon some subject belong to one of these departments."

O. A. Kennedy, B.S., Professor of Chemistry and Geology, replaced Mr. Howe and, in 1891-92, was made Professor of Zoology and Botany, the first biology professor at Central University. Professor Kennedy was a graduate of Central University and returned to his alma mater after three years at Rugby High School and one year at Hospital College of Medicine in Louisville. Both Botany and Zoology met three times a week one term each, the former using Gray: School and Field Botany and the latter, Holder: Zoology as texts. One advancement at the University level in 1892 was the provision for a Teachers' Normal Course and the addition of summer courses for the benefit of teachers. Apparently, Professor Kennedy left the institution in 1894 and biology courses were again included in the Department of Geology, chaired by R. M. Parks, Ph.D.

In 1895-96, A. Wilkes Smith was promoted to Professor of Physiology. Department of Biology and Geology was listed in the catalogue but no one was listed to teach the courses. Dr. Parks apparently gave his whole time to teaching Chemistry and Geology. A year later Botany and Zoology were combined into a one year course in Biology, listed as being offered twice a week. Women were admitted in the nineties and in 1898, Central University became co-educational.

The 1900 catalogue continues to refer to the Department of Biology and Geology and lists William Foster, Jr., Ph.D., Professor of Chemistry and Dr. A. Wilkes Smith, Professor of Physiology as faculty. It might be assumed that Dr. Smith taught some or all of the biology following his promotion to Professor of Physiology. The texts used were Kingsley: Elements of Comparative Zoology, Bessey: Botany, and Spaulding: Introduction to Botany.

Following the removal of Central University from the Richmond campus to the Danville campus in 1901, the Presbyterian Church arranged for the continued use of the buildings for a private preparatory school for boys. This was known as the Walters Collegiate Institute. When plans were made for the founding of Eastern Kentucky Normal School, Singleton P. Walters played an important role in bringing Eastern to Richmond. Several buildings and a large part of the Institute campus were given for the establishment of the normal school in 1906.

2. EASTERN KENTUCKY NORMAL SCHOOL

1906 - 1922

It could be said that ideas which ultimately led to the founding of Eastern began to circulate in 1838 when school teachers and the superintendent of public instruction, excited by the reported planning of the first normal schools in America to be established in Massachusetts, began to talk of state institutions for the training of teachers in Kentucky. Little was accomplished but by 1904, several committees at regional and state levels were active and, with the help of several newspapers, pressure was applied on the state legislature and the public. Hon. Richard W. Miller of Madison County introduced a bill in the 1906 legislature to create three state normal schools, twenty years after the founding at Frankfort of the Kentucky Normal and Industrial Institute for the colored teachers of Kentucky. Finally, on March 21, Governor L. C. W. Beckham signed into law a bill passed by the legislature providing for the establishment of two normal schools, one of which was to be known as Eastern Kentucky Normal School and to be located in Richmond, Kentucky. The facilities of old Central University, housing the Walters Collegiate Institute, were procured to house the new state supported school. The other normal school established as a sister institution was Western Kentucky Normal School, a successor of a private normal school in Bowling Green dating back to 1884.

Eastern Kentucky Normal School was opened on January 15, 1907, although the Model School had opened on September 7, 1906. Ruric Nevel Roark

was the first president. At first, graduation from the eighth grade was the minimum requirement for admission but graduates of colleges were acceptable.

In the Eastern Kentucky Review, vol. 1, no. 1, October, 1906, there are listed three programs involving biology in which students may enroll. The Review Course offered one term of each, nature study and physiology. The One-Year State Certificate Course offered botany and a second term of physiology in addition to the biology offered in the Review Course. The Two-Year State (Normal Life) Diploma Course added another term of botany and the Four-Years Principles Course added two terms of zoology. Each term lasted about nine weeks. John Aldertus Sharon, B. Ped., was the apparent first teacher of the Review Course and the One-Year Course. In 1907, Ernest Clifton McDougal, A. M., was added to the staff as business manager and teacher of natural science. Lewis Nelson Taylor, B. S., was director of the Review Course in 1908. Four courses in biology were described in the 1908 edition of the Eastern Kentucky Review: Biology, Botany, Botany 2, and Nature Study. Biology was an elective course which included such topics as "parts of the living plant cells, structure and development of lichens, mosses, ferns, algae and fungi; habits, structure and development of the earthworm, grasshopper, toad and the most common of the protozoa."

Botany was a required course meeting three recitations and two laboratory periods per week for two terms. The first term consisted mainly of "morphology, physiological botany, ecology and systematic botany." The laboratory included "experiments, tests, drawings, and descriptions of various parts of the plant and its fruit." Field excursions and the collection and identification of flowers from twenty five families were required. The second term of Botany dealt mainly with the Cryptogams. Poisonous and medicinal plants

were also studied, and sectioning and preparation of "a small collection of permanent microscopic slides" was required.

Nature Study included bird study one period each week; common plants, trees and insect identification another period; and three lectures per week. Stereoptican lectures were given in the evenings on "birds, flowers, trees, mushrooms, geology, and other interesting subjects." Each student made a collection of one hundred different kinds of plants and insects. In 1909, George Drury Smith, B. S., was employed as professor of natural sciences.

First mention of a Department of Biology is made in the Eastern Kentucky Review published in 1910, the year J. G. Crabbe, A. M., became president. In addition to Elementary Biology and two terms of Botany, three terms of Physiology were listed. Nature Study was listed in the Department of Geography and Geology, but in 1911 it was relocated in the Department of Biology. Agriculture was sometimes substituted for a biology course to meet the requirements for a teaching certificate.

Dr. Thomas Jackson Coates was appointed president in 1916. Few changes were made between 1911 and 1917, but in the 1917-18 Eastern Kentucky Review, the sciences were grouped together in the Department of Science with G. D. Smith as instructor in the natural sciences. Two terms of Physiology, two of Botany and one of Nature Study were offered. Elementary Biology was discontinued. However, in 1918, consideration was given to those students who did not want to teach and a course in biology was re-introduced for the purpose of furnishing a biological background for psychology, sociology and agriculture courses. Nature Study was increased from one term to two.

A new faculty member was added to the faculty to teach Biology and Agriculture in 1920. He was Ashby B. Carter, B. S., and with his coming, a

new course in biology labelled Biology 2C was introduced:

> "This course is devoted largely to microbiology with plenty of laboratory work."

Two additional courses (terms) in Physiology were also introduced at this time. Up until 1921 there had been no distinction between the courses offered as Elementary Course (two year high school), Intermediate Course (last two years of high school), and Advanced Course (first two college years). At the close of 1921-22 school year, the last for Eastern Kentucky Normal School as such, there were two faculty, G. D. Smith and A. B. Carter, teaching the following biological courses at the high school and college levels in the Department of Science.

Physiology 1.	(hygiene, sanitation, first aid, disease prevention)
Physiology 2H.	(human body)
Physiology 3H.	(intermediate pupils) (hygiene and sanitation)
Physiology 4C.	(sanitation, hygiene)
Nature Study H.	
Nature Study C.	
Botany 1H.	(vascular plants)
Botany 2H.	(cryptograms)
Biology 1C.	(growth, development, evolution, genetics as a basis for psychology and sociology)
Biology 2C.	(mostly microbiology)

Those faculty who taught biological subjects in Eastern Kentucky Normal School were as follows.

Prof. John Aldertus Sharon, 1906. B.Ped., University of Kentucky.
Nature study, physiology, botany.

Mr. Ernest Clifton McDougal, 1907-1909. B.S., A.B.; A.M., C.E., National Normal University, Southern Normal University.
Natural science.

Mr. Lewis Nelson Taylor, 1906-1908. B.S., University of Kentucky.
Nature study, physiology.

Prof. George Drury Smith, 1908-1940. A.B., B.S.; M.S., D.Sc., Ohio Northern University.
Natural Science.

Mr. Ashby B. Carter, 1920-1940. B.S.; M.A.; George Peabody College for Teachers.
Biology.

3. EASTERN KENTUCKY NORMAL SCHOOL AND TEACHERS COLLEGE

1922 - 1930

In 1922 the state legislature passed an enabling act which separated the Normal School from the College and our institution became known as Eastern Kentucky Normal School and Teachers College. With this change the semester system was introduced instead of the term system.

At this time, T. J. Coates had been president for six years and H. L. Donovan, former Dean of the Faculty, for one year. The curriculum of the Normal School included one semester of Science 3: Biology involving "the completion of the work of a standard high school text." In the Teachers College one semester of Science 109: Biology was required of all students. Its catalogue description follows.

> "Science 109: Biology. This is a course in general biology, involving a study of typical forms of plant and animal life. As far as possible environmental material is used for laboratory study. The course aims to lead the student to form habits of accurate observation, clear thinking and logical conclusions. Attention is called to the great question of life, the struggle for existence, the survival of the fittest, laws of heredity, influence of environment and practical results of hybridization."

Four other biology courses were listed among the electives in science. All courses were for three semester hours of credit and each student was required to elect four semester hours in a science. The catalogue description follows.

> "Science 105: Botany 1. This course includes a study of the flowering plants in the field and also in the laboratory. A careful study is made of the structure, morphology, reproduction and ecology of plants. A carefully prepared notebook is required."

"Science 106: Botany 2. This course includes a study of the mosses, lichens, liverworts, algae, fungi, bacteria and plant diseases. Two recitations and two laboratory periods a week are required. Careful notes are kept."

"Science 107: Zoology 1. This course includes a study of the structure, development, habits, variation and relation of the ten animal sub-kingdoms to each other, to man, to plants and to agriculture. Much field work is done. Two recitations a week and two laboratory periods, and a carefully prepared notebook is required."

"Science 108: Nature Study. This course includes a study of material available for high school and college teaching, and its chief sources are as follows: Collections from nature, trips, literature, botany, zoology, agriculture, geology, geography, astronomy, meteorology and photography. Visual education is stressed. Problems in field work are assigned to the individual pupil. The aesthetic phase of the subject is given much attention. Careful notes on the work are required."

No mention of Physiology or Bacteriology is made in the catalogue although these had been offered in prior years in the Normal School.

A Museum Club was organized in 1922 headed by Prof. G. D. Smith and in which students from History, Civics, Geography, Geology, Art and Biology were involved. Among the articles collected for the proposed museum were "two live alligators, an eight-legged pig, a 65 pound cannon ball shot in the battle of Richmond, two swords, . . . a boomarang from Australia." There seems to be no further mention of this club or of its activities in Eastern publications.

Dr. Homer E. Cooper succeeded Dr. Donovan as Dean of Faculty in 1924. Three new courses in biology appeared in the catalogue that year. Two of these came as the result of expansions of existing courses. Science 107 was divided into 107a: Zoology 1, which had to do with invertebrate animals, and 107b: Zoology 2, which concerned vertebrate animals. Likewise, Science 108 was expanded into a two semester sequence, 108a: Nature Study 1, and 108b: Nature

Study 2. A new course entitled Bacteriology was added; a similar course had previously been taught two years earlier in the Normal School as Biology 2c.

> "Science 118: Bacteriology. A study of micro-organisms and their relation to Human Welfare. Science 109 (biology) pre-requisite. Credit three semester hours."

Also, two semesters of physiology were added with a credit of three semester hours each.

> "Advanced Physiology 1. This course will include a study of the structure and composition of the tissues and organs of the human body. Two recitations and one double laboratory period per week.
>
> Advanced Physiology 2. The course will include a study of functions and care of tissues and organs of the human body. Two recitations and one laboratory period per week."

At this time the four-year teachers college course required two semesters of botany and six additional hours of science for the baccalaureate degree. This applied to all students. Other requirements included 24 hours of Education, 12 of English, 6 of Mathematics and 12 of Social Science. One year later, in 1925, the one semester biology (109) was substituted for botany. The science elective was reduced to four semester hours. And in 1926, the biology course was dropped and the science electives increased to 12 semester hours.

More emphasis was placed on the preparation of teachers in specific teaching areas in 1926 when a course designed only for teachers was added to the biology offerings. This was in addition to an already existing course, Science 100, Teaching of General Science in Secondary Schools.

> "Science 107c. How to Teach Biological Science. This course will consist of a study of all the good material that has been written on nature, zoology, and botany and where to find it. How to present to the pupils and how to enrich it from nature by a study of these things in the field. Two lectures and one double laboratory period per week. Senior college. Credit three semester hours."

The biology was taught in the Roark Building, erected in 1909 at the cost of $45,000. The building was also used by physics, chemistry, agriculture, and the administrative offices of the institution. The laboratory sessions were met in room 10 and the lectures in room 11.

There is ample evidence of the growth and expansion of Eastern in the years following 1927. The new Administration Building was occupied in 1927, the course offerings in some departments were revised and enlarged, individual departments in the sciences were recognized, a revision of the curricula was under way, and an effort was made to obtain and add more highly qualified faculty. In the area of biology the new courses introduced may have been in support of the minor which the students in agriculture preferred. Professor George Gumbert had joined the agriculture faculty in 1925 and his enthusiasm for an improved curriculum in agriculture may have had some influence on the biology department. Students majoring in agriculture usually minored in biology; there seemed to be no major in biology at this time.

Records seem to indicate the earliest student to graduate with a first major in biology was Henry Triplett from Corbin. He graduated in May, 1930, with specializations in biology, history, and chemistry. Early graduates majoring or minoring in biology at this time were as follow.

'29 William Parker Clifton, Owenton, Ky. Chemistry, biology.
'29 Eliza Hughes Vanpeursem, Nicholasville, Ky. Physical education, biology.
'30 Willie Cornet, Larue, Ky. Agriculture, biology.
'30 O. J. Graham, Springdale, Ky. Chemistry, biology.
'30 Colonel Hammons, Paintlick, Ky. Social science, biology.
'30 Mrs. Alton Smith, Waco, Ky. Social science, biology.
'30 Henry Triplett, Corbin, Ky. Biology, history.

The pattern of the trend in biology course offerings and their catalogue numbers can be followed through the remaining history of the

department for almost fifty years. The offerings listed in the 1927 catalogue are as follows.

Science 121 General Biology (formerly Sci. 109)
Science 231 Botany 1 (formerly Sci. 105)
Science 232 Botany 2 (formerly Sci. 106)
Science 233 Plant Diseases (a new course)
Science 241 Zoology 1 (formerly Sci. 107a)
Science 242 Zoology 2 (formerly Sci. 107b)
Science 243 Economic Entomology (a new course)
Science 244 Parasitic Zoology (a new course)
Science 151 Nature Study (formerly Sci. 108a & 108b)
Science 181 Physiology (formerly Advanced Physiology 1)

Department of Biology. In 1928 the Department of Science was divided into separate departments. The Department of Biology listed twelve courses in the catalogue and four faculty members. Three of these faculty taught part time in biology; Professor A. B. Carter was from Agriculture, Professor Meredith Cox was from Chemistry, and Dr. Jacob D. Farris was the College Physician. The fourth professor was Dr. Dean W. Rumbold who came to Eastern in 1928 following two attempts to employ a chairman for the department. Dr. A. W. Blizzard, Ph.D., Columbia University, accepted the chairmanship in the spring of 1927, taught two terms that summer and resigned that fall. He was followed by Mr. J. V. Harvey, a Ph.D. candidate from the University of Wisconsin. Mr. Harvey left in the spring of 1928. Thus Dr. Rumbold was the first doctorate and full time biologist to serve the biology department for more than one year. The influence of Dr. Rumbold may be seen for the next several years in the changes of the curriculum and the addition of substantial courses for a biology major. The course offerings were expanded 100 percent and included several advanced ccurses as well as a new general education type course. Five of the new courses proved to be permanent additions while the others were offered only once or twice and appeared to be special interest courses of certain individuals on the faculty.

The number of faculty teaching in any one semester was two, and this probably served as a limitation to offering new courses more frequently. New courses added between 1928 and 1931 were:

Biology 234 Plant Physiology and Ecology
Biology 235 Systematic Botany (later Local Flora)
Biology 239 Plant and Animal Histology
Biology 245 Embryology
Biology 325 Genetics
Biology 327 Animal Behavior
Biology 328 Animal Ecology

Courses which were modified included the following:

Biology 242 Comparative Anatomy
Biology 241 Invertebrate Zoology
Biology 381 Animal Physiology

As may be seen from the catalogue offerings there was a great interest in the ecological approach to biology, a foresight which was short lived, probable due to lack of both quality and number of faculty to teach these courses. Dr. Rumbold was a zoologist and the zoology program was strengthened considerably by stressing the study of animals in Biology 121, General Biology, and adding special courses in advanced zoology. Little botany was taught in the 121 course; the 231-232 sequence was actually a one year course in general botany. Dr. Norma Pearson, Ph.D., University of Wisconsin, arrived for the spring semester of 1928 to strengthen the botany course.

Some biology courses were a service to majors in other departments. The curriculum involving four years of course work and leading to the degree and college certification included twelve hours of science courses. The curriculum leading to the college certificate for teachers of the primary grades were required to enroll in Biology 121: Biology, and Biology 161: Nature Study. To obtain the high school teaching certificate the student had to complete twelve

hours of elective science. Home economics majors were required to take Biology 121: Biology, and Biology 381: Animal Physiology.

Faculty. The faculty of this period were primarily those who had taught in the Normal School prior to 1922. Professor Smith had come to the campus in 1908 and most of the biology courses seemed to revolve around him. He was a very interesting man. His "classroom was the Mecca for all worn-out teachers who came to school for physical as well as intellectual repairs. His numerous social events furnished much extra-curricular activity for the entire school. His field trips were interesting to see, with fifty or more people of all sizes and shapes, headed for East Pinnacle, Boonesborough, or Berea, the fat, elderly ladies and gentlemen barely keeping within hailing distance of their very tall, more-or-less angular, energetic leader. Professor Smith worked day and night in his efforts to build up a large student body, and hosts of former Easternites will hold him in happy remembrance as the years go by." He was an avid photographer and made hundreds of lantern slides of plants, ecological studies, and animals. Most of these slides are preserved today in the Department of Biological Sciences and some are still in classroom use.

As the emphasis of the institution changed from Normal School to teachers college there appeared to be an attempt to employ professional biologists for the college and place the natural scientists in the Normal School. This finally was concluded by the addition of two individuals, Dr. Dean Rumbold and Dr. Nora Pearson, who had obtained their Ph.D.'s in zoology and botany, respectively. The faculty who taught biological subjects between 1922 and 1930 were as follows.

Dr. George D. Smith, 1908-1940. A.B., B.S.; M.A., D.Sc., Ohio Northern University.
Professor of natural history; nature study, botany.

Mr. Ashby B. Carter, 1920-1954. B.S.; M.A., George Peabody College for Teachers.
Professor of Sanitary Science; bacteriology, science, biology.

Mr. Meredith J. Cox, 1925-1965. A.B.; M.A., George Peabody College for Teachers.
Professor of Chemistry; biological science.

Dr. J. W. Scudder, 1927-1928. A.B.; M.D.
College physician, professor of health.

Dr. A. W. Blizzard, 1926-1927. B.S., A.M.; Ph.D., Columbia University.
Chairman of biological science, professor of biology.

Mr. J. V. Harvey, 1928. A.B.; M.S., University of North Carolina, Ph.D. candidate, University of Wisconsin.
Chairman of biological science, professor of biology.

Dr. W. E. Hoy, Jr., 1928, 1929. B.S.; Ph.D., Duke University.
Botany.

Dr. Dean W. Rumbold, 1928-1942. B.S.; Ph.D., Duke University.
Chairman of biology department, professor of biology; zoology, entomology, anatomy, animal physiology, genetics, general biology.

Dr. Norma Pearson, 1928-1930. B.S., M.A.; Ph.D., University of Wisconsin.
Professor of botany; botany, morphology, nature study, parasitic zoology, general biology.

4. EASTERN KENTUCKY STATE TEACHERS COLLEGE

1930 - 1948

Eastern Kentucky State Normal School and Teachers College continued for eight years before "normal school" was deleted from its name. In 1930 the institution became known as Eastern Kentucky State Teachers College. The Normal School continued to be housed in University Building and was renamed Model High School. The Elementary Training School was housed in Cammack Building where it had been ever since the building's construction in 1918. Biology and other sciences were taught in Roark Building from which the administrative offices moved in 1928 to the new Administration Building. The president of Eastern was at this time Dr. H. L. Donovan, president since 1928. There were two faculty members in the Biology Department, Dr. Dean Rumbold and Dr. Norma Pearson.

Courses for biology majors. With the change in name of the institution there was some reorganization of course work. The visions of Drs. Rumbold and Pearson were premature in the addition of these seven new courses.

BIO 234 Plant Physiology and Ecology
BIO 235 Systematic Botany
BIO 239 Plant and Animal Histology
BIO 245 Embryology
BIO 327 Animal Behavior
BIO 328 Animal Ecology
BIO 381 Animal Physiology

Dr. Harriet Krick succeeded Dr. Pearson in 1930 which may have contributed to some of the course changes immediately afterwards. BIO 234 Plant Physiology and Ecology was deleted from the catalogue in 1931. There was no equipment nor facilities to teach such courses. BIO 235 Plant Systematics involved the

identification of the flora of the community and was later renamed Local Flora; it became a permanent addition to the curriculum. BIO 239 Plant and Animal Histology lasted only a couple of years probably due to the lack of competent faculty in that field, but in 1947, with the insistence of Professor A. L. Whitt and as a result of pressure by pre-medical students for such a course, Animal Histology was added. Two other courses, BIO 327 Animal Behavior and 328 Animal Ecology, failed to last more than a couple of years although both of them, like histology, became basic courses many years later. In 1931 BIO 245 Embryology was added as a supporting course to a pre-medical program initiated by Dr. Rumbold and the Chemistry Department.

Although there were several changes in titles and numbers of courses for biology majors during the next eleven years, no real material change occurred until the college left the semester system in 1942 and entered into a quarter system. In the fall of 1939, Dr. Krick was replaced by Dr. H. H. LaFuze, a plant physiologist. Dr. Rumbold made the decisions relative to zoological courses and Dr. LaFuze made similar decisions regarding botanical and biology courses. Reorganization occurred with the change to the quarter system. One semester courses were changed to either one term or two term courses. Perhaps the greatest change in specific courses at this time was the conversion of BIO 121 General Biology from a one semester course to a one year course consisting of three quarters. The course content was greatly expanded with the use of more advanced texts, the introduction of more laboratory work and creation of a better balance between botany and zoology. One full term was given to botany while general principles and zoological materials were presented in the other two terms. At the same time the general botany course was elevated to an advanced type of anatomy-physiology for one term and plant morphology for the second term.

In 1945 three courses were added, BIO 29 Human Physiology, for majors in home economics who had been taking BIO 481 Animal Physiology along with the biology majors. It was felt by both departments, home economics and biology, that BIO 481 did not meet the needs of all the biology majors, the pre-medical majors and the home economics majors, and that if a special course such as human physiology for the home economics majors were introduced, the 481 physiology course could be improved for the benefit of science majors.

BIO 31 Dendrology and BIO 38 Ornithology were introduced as field courses open to both biology majors and elementary majors who at that time were interested greatly in including natural science in the elementary classrooms. All of these courses proved to be substantial additions and persisted for the benefit of biology majors through the years, while the curriculum of the elementary majors directed those students more toward indoor science subjects.

In an attempt to improve the curriculum for health and physical education majors, a course including more human anatomy, BIO 25 Applied Anatomy and Physiology, was introduced. In prior years these students had enrolled in comparative anatomy which did much toward teaching the skeleton and musclature of a cat in the second term, but, as a prerequisite, the first term was devoted to the lower vertebrate animals. The purpose of the new course was to concentrate on man and relate function of muscles and bones to structure.

The department believed students should have an opportunity to conduct independent investigations of a caliber which time in a regular content course would not permit. Further, new areas of biology not included in existing courses came to the minds of students. To meet these needs, BIO 49 Problems in Biology, was added for the benefit of majors. Several students became interested in research through this course.

Graduate program. While a graduate program in education had been in existence at Eastern since 1935, all of the course work was in education until 1947 when the biology department introduced BIO 51 Biological Preparations. This course, taught by Dr. LaFuze, was for the benefit of teachers who wanted to know more about handling biological specimens, planning and setting up biological experiments and taking field trips. Thus BIO 51 was the first graduate course in biology, the first in the area of science and mathematics, and the second in the Arts and Sciences (preceeded only by a course in English).

Courses for non-biology majors. The curricular requirements for a college certificate in elementary teaching in 1930 included 121 General Biology and 161 Nature Study, while those for teaching in the secondary school simply specified six to ten hours of science. Majors in Home Economics were required to take 121 General Biology and 381 Animal Physiology.

In 1931 experimental curricula were introduced in a special issue of the Eastern Kentucky Review where it was stated "the curriculum of the teachers college is somewhat akin to that of the liberal arts college in that it should provide a rich culture. It is similar to the curriculum of the vocational school since professional skills are to be developed. These purposes are not antagonistic but they are concomitant." To what extent this was actually applied and how it involved biology may be seen in the curricula of the various departments which offered majors then.

Area of Major	Biology Courses Required/Hours in Major (in 1931)
Agriculture	121 Biology, 233 Plant diseases or 243 Economic Entomology/30 hours.
Chemistry	None/41 hours.
Commerce	None (12 hrs. elective science)/45 hours.
Elementary Education	161 Nature study, 121 Biology, plus 5 hrs. science/ 33 hours.
English	None (12 hrs. elective science)/41 hours.
English Literature	121 Biology plus 8 hrs. elective science/42 hours.

Foreign Language	None (12 hrs. elective science)/33 hours.
Geography/geology	None (9 hrs. elective science)/34 hours.
Home Economics	121 Biology, 381 Animal physiology plus 5 hrs. from biology, chemistry or health/38 hours.
Industrial Arts	None (12 hrs. elective science)/29 hours.
Mathematics	None (12 hrs. elective science)/33 hours.
Music	None (12 hrs. elective science)/39 hours.
Physical Education	121 Biology, 381 Animal physiology/24 hours.
Physics	None/26 hours.
Social Science	None (12 hrs. elective science)/35 hours.

While this does not supply a complete picture of the entire curriculum of each department it does indicate biology was specifically required only as a supporting course to a professional field and only by English Literature as a "cultural" course. All departments were in a position to elect biology and students in two-thirds of the departments could omit biology completely from their curricula.

In 1934, an entirely new concept of science courses for non-biology majors was introduced in the form of survey courses, SCI 111 and SCI 112. The history of these courses will be discussed in chapters five and six.

Biology major curricula. There were two majors in biology, one with emphasis in botany and the other with emphasis in zoology. The general requirements for both included the following.

Education	12 hrs. specified and 6 hrs. elective
English	12 hrs. specified
Mathematics	3 hrs. specified and 3 hrs. elective
Social Science	6 hrs. specified and 6 hrs. elective
Chemistry	9 hrs. specified

The biology courses in each of the departmental experimental curricula (1931) were as follows:

Biology-Botany	Biology-Zoology
121 General Biology or 241 Invertebrate Zoology	121 General Biology or 241 Invertebrate Zoology
242 Comparative Anatomy	242 Comparative Anatomy

231 General Botany
232 Advanced Botany
235 Systematic Botany
234 Plant Physiology and
233 Plant Diseases or
234 Plant Physiology and Ecology
381 Animal Physiology

231 General Botany
232 Advanced Botany or
235 Systematic Botany
Biology Electives

In the years that followed the greatest change was made in the supporting courses to a biology major. The departments of chemistry, physics and biology agreed that in a liberal arts program, it is essential that a major in one science should be acquainted with the other sciences. By mutual agreement in 1945 twelve quarter hours of each science area would be required of all majors in each of the sciences.

Only slight differences existed in the biology curricula, "with teaching certificate" and "without teaching certificate."

With teaching	Without teaching
Biology I, II, III	Biology I, II, III
Comparative Anatomy I, II	Comparative Anatomy I, II
Human Physiology	Physiology
Botany I, II	Botany I, II
Dendrology	Plant Physiology
Chemistry, 12 hours	Chemistry, 12 hours
Physics, 12 hours	Physics, 12 hours
Elect 12 hours in science	Elect 12 hours in science

Educational budgets. The budget for educational supplies for the biology department in 1939 was $300. Equipment and supplies were scarce or in poor condition, especially those used in botany laboratories. Dr. Rumbold, chairman of the department, obtained a special addition of about $300 which he gave Dr. LaFuze to up-grade the laboratory supplies for botany laboratories. Some of the microscope slides purchased in 1940 were still in fair condition when they were replaced in 1970-73.

The annual departmental budget remained at $600 through the war years until 1946 when needs for replacements and additional supplies became critical. The increased student enrollment necessitated the offering of more laboratory sections. The budget for 1946-47 was increased to $2000 to meet some of these needs. Thenafter, it varied from $1800 in 1949-50 to $1100 in 1954-55, $1400 in 1956-57 and $1600 in 1959-60.

In 1961-62 the educational supply and repair budget was $2350, and by 1964-65 it was $8950. The boom in enrollment demanded more courses, more sections and more faculty. It became necessary to prepare a budget for each course within the department in order to insure a fair financial support for each course. Each faculty member submitted a list of anticipated needs for the next year, and if the sum of all faculty requests exceeded the total budget figure supplied by the university for the department, that faculty member who asked for more than was spent in the current year had to defend his request to the departmental chairman and a compromise was arrived at.

Budgets for educational supplies and repairs for 1965-66 was $11,200, for 1967-68 was $21,500, and for 1974-75 was approaching $30,000.

Faculty. During the eighteen years following the separation of the normal school from the teachers college the faculty appeared to be quite stable. With the unexpected resignation of Dr. Harriet Krick in the fall of 1939 after nine years of faithful and gainful service to the department, it was necessary to make an immediate replacement.

At that time Dr. H. H. LaFuze, who was teaching botany in what is now Southwestern Oklahoma University, had just weathered a political crisis in the Oklahoma system of higher education. It was reported close to thirty percent of the faculty at Southwestern either had resigned or were dismissed due to an

earlier change in governors followed soon after by political changes of the presidents in some of the universities including Southwestern. Dr. LaFuze who had not taken sides with either political faction and being more of a professional educator than a politician was not dismissed. Dr. Arnim Hummel, Chairman of the Science Division at Eastern, called by phone to discuss Eastern's vacancy and to inquire of his availability to come to Eastern. The next day he received a telegram from Dr. Herman L. Donovan, President of Eastern, offering employment on the basis of papers supplied by a teacher placement bureau and, perhaps in a small way, his reported experience in photography and his ethical hesitation over the phone to leave Oklahoma since registration there had already started. Dr. LaFuze, on being offered a release by Oklahoma, accepted the invitation to come to Eastern, an institution about which he knew nothing.

Another stable but difficult and worried period of nine years followed, greatly influenced by World War II. Dr. Harold Glover, professor in general science, assisted in 1940-43 by teaching some of the courses in biology. Dr. Rumbold left the institution in the middle of the 1942-43 academic year to join the navy. Dr. Glover also left in 1943.

Although total enrollment of the institution dropped to about 270 students (not counting the A.S.T.P. enrollment) in 1943, a good variety of courses was still offered. Dr. LaFuze was the only full time faculty member in the biology department in 1943-46. The teaching loads were very heavy in those days, but no one complained. The courses taught in biology during one year, 1944-45, were General Biology I, II, III, Nature Study, Dendrology, two sections of Human Physiology, Genetics, two sections of Biological Science, Plant Physiology, Comparative Anatomy and Animal Physiology.

In addition to the above courses, Dr. LaFuze was drafted to teach one section of general chemistry for one semester in the A.S.T.P. program for the

U. S. Army. No biology was offered in either the A.S.T.P. or W.A.C. programs at Eastern. Subjects essential to the winning of World War II were taken; these included physics, mathematics, chemistry, foreign language, secretarial courses, basic military science, geography, English and certain other courses which would allow this training to count toward a college degree should the student return to college after the war. The library and some other facilities were used as study halls and these were monitored by faculty. Dr. LaFuze also served as a monitor in the evenings. In these days, the general attitude of everyone was one of survival.

The following faculty taught at Eastern Kentucky State Teachers College for at least one academic year; the courses taught during this period are listed after each name.

Dr. George D. Smith, 1908-1940. A.B., B.S.; M.A., D.Sc., Ohio Northern University.
Nature study.

Mr. Ashby B. Carter, 1920-1954. B.S.; M.A., George Peabody College for Teachers.
Bacteriology, nature study.

Dr. Dean W. Rumbold, 1928-1942. B.S.; Ph.D., Duke University.
Biology, comparative anatomy, entomology, animal ecology, invertebrate zoology, embryology, animal physiology, biological science.

Dr. Harriette V. Krick, 1930-1939. A.B.; Ph.D., University of Chicago.
Biology, botany, plant diseases, morphology, local flora, biological science.

Dr. H. H. LaFuze, 1939-1976. A.B.; M.S., Ph.D., University of Iowa.
Biology, botany, plant disease, local flora, morphology, plant physiology, dendrology, genetics, nature study, human physiology, animal physiology, embryology, comparative, ornithology, biological science.

Dr. Harold T. Glover, 1940-1943. A.B., M.S.; Ph.D., George Peabody College.
Biological science, biology, nature study, human physiology, entomology, ornithology, comparative.

Mr. L. C. Glass, 1946-1947. A.B.; M.S.; University of Wisconsin.
Biology, anatomy, physiology, comparative anatomy.

Dr. William Hopp, 1947-1955. A.B., M.A.; Ph.D., Purdue University.
Applied anatomy, human physiology, nature study, embryology.

It was impossible to employ permanent faculty in the mid-1940's, first, because many persons were involved in the war, and second, money was scarce. The following also taught some biology courses between 1940 and 1948.

Dr. Anna Schnieb, Professor of Education. Human physiology, nature study.
Dr. Arnim Hummel, Professor of Physics. Biological science.
Dr. Meredith Cox, Professor of Chemistry. Biological science.
Dr. Thomas Herndon, Professor of Chemistry. Biological science.
Mr. Tom Samuels, Football Coach. Biological science.
Mr. William H. Cooner. Comparative, physiology, histology, embryology.
Mr. Cephas Bevins. Biology, human physiology, embryology.
Mr. Charles Brewer. Nature study, botany.
Mr. Tandy Chenault. Biology, nature study.
Ms. Thelma Whitlock. Human physiology.
Ms. Lucile Rice. Botany.
Mr. William Adams, Jr., Biology.

5. EASTERN KENTUCKY STATE COLLEGE

1948 - 1966

Dr. W. F. O'Donnell saw Eastern through the turbulent but exciting years as president between 1941 and 1960. During the war years many of the faculty left for the armed forces and students, especially boys, became scarce on the campus. President O'Donnell was a very wise man and also very cautious, except that sometimes he seemed to act upon hunches. He was most sincere and constantly had the welfare of students and faculty in mind. In the 1940's and early 1950's he seemed to know the students on the campus by their names and many by the town or county from whence they came. Money for salaries and instruction was not too plentiful in this period, but President O'Donnell seemed to know where the greatest need was and appropriated money to the best interest of the total college. On one occasion when scheduling of classes in biology was becoming most difficult because of a shortage of microscopes, Dr. LaFuze approached President O'Donnell in the hallway of the administration building concerning the problem and asked for an appointment. President O'Donnell, still standing in the hallway and apparently with forehand knowledge, responded "I'm going to surprise you this time. You have the money; you may order them now."

Although the 1943 fall college enrollment had dropped to a total of 270 regular students, a good time followed when the veterans began to return in 1946 to continue their education as serious minded students. These offered competition to the younger and less experienced generation coming directly from

high schools; an excellence in academic enthusiasm that is difficult to attain in the present generation was experienced in many departments. Growth became quite evident by 1948 and reorganization of courses and the addition of new faculty gave new impetus to the institution. The biology department as well as those of the other sciences began to foresee a pinch on teaching facilities. In 1948 all biology laboratory classes were taught in two rooms, numbers 10 and 16, in the Roark Building. Lectures were held wherever and whenever they could be made to fit into a schedule with the other departments housed in Roark.

Memorial Science Hall. Dr. LaFuze and the chairmen of chemistry and physics departments were involved over a two year period in planning laboratories for the future. Assisted by Dr. Hopp and Mr. Whitt, plans were made for ten new biology laboratories in a magnificant building housing all science departments, to be located where the present Moore Building is now. At this time building materials were scarce and costs were accelerating fast. Some claimed the cost of the building in 1949 would not have greatly exceeded that spent in 1952 on the building actually constructed and containing about half of the facilities. However, it was alleged that due to some restrictions in Frankfort a new building could not be approved, but that an addition to an old building would be possible. For that reason, or for another, new plans were then prepared for a much smaller facility and Memorial Science Building was attached to Roark Building and completed in 1953 at a budgeted cost of $650,000, named in honor of those Eastern alumni who lost their lives in World War II. The occupation of the new building was a great relief to Dr. LaFuze who was very conscious of the wooden floors of Roark together with the old electrical wiring and overloads on the circuits. On several occasions when the odor of smoke was evident in the halls he could be seen feeling with his hands across the floors in anticipation of hot spots;

fortunately the odors usually came from the chemistry labs located in the basement.

Memorial Science Building was to house biology, physics and chemistry departments on the first, second and third floors, respectively. The basement consisted of three unassigned rooms along one side of a hall, and an unexcavated area commonly referred to as the "rock room" was left on the other side of the hallway. On the biology floor two laboratory rooms were located at opposite ends of the building. One service room located between each two laboratories and filled with shelving was to serve for storage. A sink placed in the storage room permitted lab preparations and clean up operations for the two different labs. There was literally no storage accomodations in three of the laboratories; the physiology laboratory, however, was equipped with a small wall cabinet. A fifth room on the second floor was designated as a bacteriology laboratory. Adjacent to this were small but separate incubator, storage and preparation rooms. The bacteriology instructor used a corner of the laboratory for his office.

Although twice as many were requested by Dr. LaFuze, three offices were planned for the biology faculty (there being only three faculty members in the department at the time the building was planned). However, each office was partitioned to provide a small research laboratory where the faculty members could engage in private research and where a student could work on a special problem. This had been insisted upon by the biologists since there were no other rooms in the department where research could be conducted and research was considered a good incentive to improve morale of the faculty and to create interest among students as well as an instruction medium.

A lecture room with elevated seats and having a capacity for about ninety students was also on the first floor. Plans for a greenhouse and animal

care facilities were laid aside as also were photographic, research and specialized laboratories which the faculty considered essential to a growing student population and an expanding biology department.

Very little equipment came with the new building, most outstanding of which were microscopes to equip two laboratories. Some old physiology and technique equipment was obtained from a surplus property depot in Frankfort; this was repaired when possible and used. Office furniture for the new building was also obtained from the surplus army depot. There was no scarcity of furniture although some pieces were battered and needed repairs before they could be used.

The vision of expansion in these years as viewed by Dr. LaFuze and the other science chairmen were not shared by the administration. Much concern was voiced by President O'Donnell concerning the idea that the new building was too large and the science departments would never make use of all the rooms. He chided Dr. LaFuze on the "spacious" accomodations of six rooms for biology in the new building when only two rooms were presently being used in Roark Building. But it was only a matter of about three years before an additional laboratory in the basement and a second lecture room were assigned to the biology department. Also, a plant growth and animal room was provided in the basement, and a photo lab and storage spaces were converted from the partially excavated portion (the rock room) off the basement.

National Science Foundation support. The Department of Biological Sciences took advantage of the programs sponsored by the federal government and designed by the National Science Foundation to up-date the teaching professions in the public schools and the universities. Prior to this, during the early 1950's, interest in research had been expressed by Dr. Zimmack and Mr. Whitt and some expenditures were made from instructional budgets for research materials

and small equipment on the grounds that they were necessary for course work and that students should see some research in progress as a part of their education. Also, in 1955 a special allottment of money was made for equipping the new bacteriology laboratory. From that time on, it was not so difficult to obtain a small equipment budget each year.

Beginning about 1960 the department made applications to the National Science Foundation to receive financial aid for the purchasing of equipment on a share-cost basis with the state of Kentucky. Numerous expensive pieces of equipment were added to the department in this way during the next dozen or so years—for example, physiological recording equipment, projection equipment, audio-tutorial laboratory equipment, field zoology equipment, and sophisticated instruments for testing and experimenting in the laboratory. The addition of this equipment not only made possible the acquisition of expensive pieces which otherwise would not have been possible through the state budget, but it permitted the use of our normal budget for smaller less expensive items necessary for the courses taught. Perhaps even more important, it had the effect of making possible a greater depth in laboratory instruction and of increasing the enthusiasm and morale of the faculty.

A second way in which the National Science Foundation helped the department and public school instruction was through the introduction of special institutes. In 1960-61, the department was favored with an Academic Year In-Service Institute for secondary teachers in science and mathematics from eastern Kentucky for two semesters. About twenty students attended the biology sessions each semester. The courses were team taught by four biology faculty members and included ten different biological topics in which the public school teachers indicated through a survey they needed better understanding. The program and

concepts of the institute was well received but the students and faculty both agreed a one-year institute was too long and too strenuous on the participants who were also teaching full time in their own schools. Several institutes followed but these were confined to three to six weeks in the summers. For instance, one in 1964 dealt with physiology for participants with high ability, and another in 1965 dealt with cellular biology and ecological biology. The general purpose of these institutes was to up-date or review topics which the participants had had in college a few years before or in other cases to provide instruction where there had been none previously on topics that were to be taught in the public schools.

New courses. The institution changed from the quarter system back to the semester system in 1948. The general feeling at this time was that the quarter system offered a too brief contact period between instructor and student for effective teaching-learning relationship, and that the quarter had the effect of chopping off or prolonging a subject as compared to conventional college courses being offered in most other institutions of higher learning. With the change in course numbers and credits there were additions of three new courses in biology.

BIO 433 Economic Plants was introduced as a general education course in botany to acquaint the student with those plants around the world which were especially useful or harmful to man's well being and survival. Many of the majors in elementary education seemed especially interested in this type of information and it proved to be a popular course for students in other departments as well.

BIO 345 Field Zoology was added to supply to some extent in the animal kingdom what Local Flora was doing in the plant kingdom for the biology majors and minors, that is, provide field acquaintances with the more common native animals and learn of their ways of life. The opinions of the biology staff were

divided between offering this course and offering a number of two or three hour courses on different aspects of field zoology. Insufficient faculty and students to enroll dictated that the general course was more practical at this time, but in a few years the course was discontinued in favor of three or four more specific courses which will be mentioned later. Dr. Zimmack and Mr. Whitt were the organizers and the first instructors of Field Zoology at Eastern.

And finally, the third new course added was BIO 511 Advanced Biology, which had been preceeded only briefly by BIO 51 Biological Preparations under the quarter system. Both of these courses were restricted to graduate students and were designed more for the convenience of biology majors who had graduated and were teaching in the public secondary schools. Not many students took advantage of BIO 511 in the 1950's; the graduate program was not pushed by the department for two reasons. The biology faculty were very busy with the increasing undergraduate enrollment, and they believed the type and quality of the graduate program sponsored by the Department of Education was not practical to the biology teacher. The M.A.Ed. degree required the student to take 50% of his work at the 500 level, and most of the program was planned by the Department of Education and taken in that area. However, there was developing among high school students an increasing interest in the sciences, partly because of national and international events and partly because of the improvements in science education at the elementary level. Secondary teachers were finding themselves inadequately prepared for this new type of science-interested student. Since the teachers preferred subject matter courses to the theory-type courses offered in education, there was a growing demand for 500 level courses in subject matter areas. The 511 Advanced Biology course permitted the department to select topics not taught in regular courses listed in the catalogue and which would offer direct help to

the in-service teacher. In 1952 a second course, BIO 512 Principles of Biology, was added as a library-lecture-discussion type course; the 511 course was used more for laboratory-discussion. Following a shift of counselling of graduate students from education to subject matter departments about 1961, both of these courses were replaced with six similar courses.

BIO 501 Advanced Botany I
BIO 502 Advanced Botany II
BIO 503 Advanced Zoology I
BIO 504 Advanced Zoology II
BIO 505 Principles of Biology I
BIO 506 Principles of Biology II

Other new courses for biology majors during the eighteen year period when Eastern was known as Eastern Kentucky State College were:

BIO 445 Microtechnique (in 1956)
BIO 303 General Bacteriology (in 1956)
BIO 451 Ecology (in 1960)
BIO 351 Vertebrate Natural History (in 1964)
BIO 421 Morphology of Non-vascular Plants (in 1964)
BIO 422 Morphology of Vascular Plants (in 1964)
BIO 499 Seminar (in 1964)
BIO 490 Experimental Biology (in 1965)

Bacteriology. The history of bacteriology at Eastern is a long one beginning in 1921 in Eastern Kentucky Normal School as BIO 2C:

> "This course is devoted largely to microbiology with plenty of laboratory work."

Again in 1924 it appeared in the catalogue as SCI 118 Bacteriology:

> "A study of micro-organisms and their relation to Human Welfare. Science 109 (biology) prerequisite."

It was moved in 1928 to a new department and it became known as Physical Welfare 118 Advanced Sanitary Science:

> "This is an introductory course in bacteriology. The more common micro-organisms and their effect on the health welfare of the individual will be made the major study. Some problems of public hygiene will be included. Methods of securing a safe supply of milk of low bacterial count will be carefully studied. The

protection and preservation of food in the home will be included. Home Economics students will find this course profitable. May be counted in satisfying the natural science requirements for a degree. Three lectures per week and two double laboratory periods per week will be required."

A companion course entitled Physical Welfare 304 Bacteriology of Water and Sewage was introduced at the same time. It met for two lectures and two laboratory periods per week. By 1930 both courses had been moved to the Department of Health and in 1935 they were combined into Health 303 Applied Bacteriology which served both agriculture and home economics majors. The title was changed to General Bacteriology in 1948. Up to this point Professor A. B. Carter was chiefly responsible for the development of bacteriology.

For some years the biology majors had felt the need of a bacteriology course in their curriculum and since the existing course was not up-to-date and was not accepted by other institutions as credit toward a biology major, the Department of Biology asked for and received the course in 1955. The course was completely rennovated by Dr. LaFuze with the help of Mr. William Soper, and equipment and supplies were purchased to completely equip the laboratory. Professor Robert Larance developed the course further in the years following 1956. The title, BIO 303 General Bacteriology, was changed to BIO 221 Microbiology, which was a better descriptive title of the course content. Later in 1970, it became known as Principles of Microbiology and again was up-dated, this time by Dr. Raymond Otero who added several new features to the course. An applied microbiology course initiated by Professor Larance in 1966 for the benefit of nurses and medical technicians was revised to BIO 273 Clinical Microbiology in 1970 by Dr. Otero. BIO 527 Immunology and BIO 622 Bacterial Physiology were added in 1969, and BIO 520 Pathogenic Bacteriology in 1974. The functions of these courses are to provide training in the field of medical technology and nursing as well as for a bacteriology major.

Curricula for undergraduate majors. This eighteen year period when Eastern was known as Eastern Kentucky State College was a most active one from the point of view of total student enrollment. The increase from 1379 in the fall of 1948 to an enrollment of 6949 in the fall of 1965 was an increase of 403 percent. The graduate enrollment in that same period moved from 47 to 298, an increase of 534 percent. This growth both at the undergraduate and graduate level caused problems involving faculty and space. Relatively little change was made in the course listings as has already been noted, nor were there many changes in the curricula.

It would be natural to assume that as Eastern ceased to be a teachers college in name and became more of a liberal arts college that emphasis in the college program would still, at least at first, be with teacher training. This is partly reflected in the curricula. The curriculum "with right of teaching certificate" is specific with respect to courses required in order to ensure a balanced program such as a secondary teacher would need. In 1948, the biology curricula for a teaching and a non-teaching major had these courses in common.

BIO 121, 122 (botany, zoology)
MAT 107, 113 (algebra, trigonometry)
PHY 131, 132 (general physics)
CHE 111, 112 (general chemistry)

Eight additional courses were recommended for the teaching major. Fifty percent of these were field courses.

BIO 242 Comparative Anatomy
BIO 229 Human Physiology
BIO 335 Local Flora
BIO 336 Woody Plants
BIO 345 Field Zoology
BIO 325 Genetics
BIO 343 Economic Entomology
SCI 471 Methods in Biology

No specific courses above the freshman level were required of the non-teaching majors on the assumption that he and his counselor would arrive at a balanced curriculum tailored for his intended profession.

Some changes in the teaching curriculum were made in the next decade. By 1953 the Entomology and Woody Plants had been deleted from the required list of courses in favor of a choice between 335 Local Flora and 345 Field Zoology, and two elective courses were added. A great amount of personal attention to the counselling of majors was given by the chairman of the department as he worked with each student in order to develop a balanced curriculum and yet give the student as much freedom as possible to elect courses in the areas of his or her interest. It was the opinion of the department that a secondary biology teacher should be informed first in the breadth of biology, such as a near equal distribution of courses between botany and zoology and between structural, functional and field courses. Courses in which students had special interests could then be used to complete the requirements for a degree. In 1965 the recommended curriculum for a biology major "with right of teaching" appeared as follows:

BIO 131, 132 (botany)
BIO 141, 142 (zoology)
BIO 303 (bacteriology)
BIO 325 (genetics)
BIO 335 (local flora)
BIO 351 (vertebrate natural history)
BIO 481 (animal physiology)
BIO 471 (methods in biology)
MAT 107, 113 (algebra, trigonometry)
CHE 111, 112 (general chemistry)
PHY 131, 132 (general physics)

Actually, an equivalent course was substituted when a student had a special interest, such as ornithology for vertebrate natural history, and plant physiology for animal physiology.

Premedical program. First mention of a pre-medical program was noted in 1931 in an announcement about the Caduceus Club which was open to students taking pre-professional courses leading toward medicine, dentistry, or nursing. Dr. J. D. Farris, college physician, was said to have organized the Caduceus Club, and without a doubt he and Professor Meredith Cox of the Department of Chemistry were responsible for the initiation of a pre-medical program. They were strongly supported by Dr. Dean Rumbold, then Head of the Department of Biology. The Department of Chemistry has continued to supervise the pre-medical program to the present day. Since the Department of Biology was even more involved at the student level than was chemistry in this special curriculum, and since many pre-medical majors preferred a major in biology to one in chemistry, and still other students, though technically chemistry majors, sought advice and guidance from biology faculty, some space should be devoted to the program here.

The pre-medical program at Eastern has always been strong, even as early as in the late thirties when much of the biology taught was slanted toward the preparation of a pre-medical student. Dr. Rumbold was very demanding and exacting in requiring students to "know it all," even the fine print under the illustrations. Both chemistry and biology offered well taught fundamentals in their courses which called for a great degree of mental discipline. In the forties, the science departments formed a pre-medical committee chaired by Dr. Arnim Hummel of the Department of Physics which very conscientiously screened each student for possible recommendation for admission to a medical school. The pre-medical student was invited to appear before the committee where he was examined orally regarding his views toward medicine as a profession and observed for mannerisms, personality, dress, etc. Each department then made its recommendation for each student, and these were openly discussed and evaluated. Those students who were

favorably recommended by this committee seldom failed to enter a medical school, and some not recommended were admitted anyway on the reputation of Eastern's pre-medical program. Others not recommended were advised of their delinquencies and encouraged to enter another program.

The first formal curriculum found for a pre-medical student was published in 1947. The chemistry and biology involved was as follows.

BIO 10, 11, 12	(general biology)
BIO 27, 28	(comparative anatomy)
BIO 46, 47	(histology, embryology)
CHE 11, 12, 13	(general chemistry)
CHE 21, 23, 24	(analytical chemistry)
CHE 26, 27, 28	(organic chemistry)

In the next few years BIO 481 Animal Physiology and three hours elective biology were added along with CHE 415 Physical Chemistry. Elective biology was usually chosen from genetics, bacteriology, or microtechnique. When General Biology was replaced with a year of each botany and zoology in 1960, the botany was dropped from the pre-medical curriculum. However, the medical schools encouraged pre-medical students to take botany and, since entrance examinations included botanical questions, many of the pre-medical students preferred to include botany and, incidentally, thereby fulfill the requirements for a major in biology. In 1965 the biology and chemistry in the official curriculum appeared as follows.

BIO 141, 142	(general zoology)
BIO 342	(comparative anatomy)
BIO 347, 346	(embryology, histology)
BIO 303, 445	(bacteriology, microtechnique)
CHE 111, 112	(general chemistry)
CHE 211, 212	(analytical chemistry)
CHE 310, 413	(organic, physical)

This was slightly revised in 1966 following the introduction of a degree in Pre-Medical Science in order to bring all of the pre-medical students together in one major under the direction of chemistry. At this time the number of students

in a department had much to do with the financial support to that department. Mr. Cox and the chemistry department initiated this move which appeared to be favored by the administration. The chemistry department assumed the responsibility for the new pre-medical program although in most institutions these programs were sponsored by biology departments. Dr. Sanford Jones in biology was selected to assist the chemistry department in advising the majors in pre-medicine and pre-dentistry. The recommended curriculum in 1966 was as follows.

BIO 141, 211	(zoology, principles of biology)
BIO 242, 348	(comparative anatomy, general physiology)
BIO 221, 315	(microbiology, genetics)
BIO 546, 547	(histology, embryology)
CHE 111, 112, 213	(general chemistry)
CHE 361, 362	(organic chemistry)
CHE 470	(physical chemistry for biological science)

Medical technology. The few students who attended Eastern before 1947 to prepare for medical technology were advised mostly by biology faculty on an informal basis. In 1947 the pre-medical technology area was recognized in the general college catalogue and entrance requirements to accredited hospitals were used as guide lines by the advisor. A tentative printed guideline prepared by the biology department with advice from Mr. Whitt was used in the mid 1950's. Most of the students at that time elected to meet the minimum requirements of two years of college preparation and a year of training in a hospital, commonly known as the three year program. To receive a certificate each had to be approved by the Board of Schools. Several of the three year medical technologists later returned to college to complete the bachelors degree. Most of the students in this program were girls. With these facts in mind, the three year program was discouraged in favor of a four year program terminating in both a certificate in medical technology and a degree from Eastern. This consisted of specific courses to be completed at Eastern and one year of technical courses to be completed in

an accredited hospital in the fourth year, the latter credit to be transferred back to Eastern to meet the total requirements for graduation. The department felt this provided greater security for the graduate and more opportunities for professional advancements. A formal four year curriculum was adopted in 1961.

Mr. A. L. Whitt was assigned by the department to develop and coordinate the medical technology program about 1960, and in 1966 as Eastern was adopting a university status Dean Frederic Ogden appointed Mr. Whitt to direct the medical technology program which included advising the pre-technologists and following up with visitations to the hospitals where the students completed their last year of training. In 1967, Dr. T. D. Meyers was appointed Coordinator of Allied Health Programs in the university. He and Mr. Whitt worked together to obtain a federal grant to support the expansion of the pre-medical technician program. The students were then not only counseled through the three years of college but were aided in locating hospitals in which to complete their fourth year of training and were counselled as problems arose in their fourth year.

Beginning in 1973 it became mandatory that a full three years of academic training should be a prerequisite to the one year of clinical training in a hospital and new special courses were provided, thereby meeting the requirements of the Board of Schools in Chicago for a registered medical technologist. The four year program in 1974 directed by Mr. Whitt enrolled 134 students in the fall, a number that was over six times that when he assumed the directorship of the program. Senior students in clinical training were now being trained in ten hospitals located in eastern Kentucky, Ohio and Tennessee.

Other pre-professional programs. The pre-veterinarian program was sponsored by both agriculture and biology departments. Arrangements were made in 1950 to transfer pre-veterinary students to Auburn University or Tuskegee

Institute after completing general education and basic science courses at Eastern, subject to their being selected by a state committee which could grant them a tuition scholarship. In 1953, a planned two-year curriculum involving specific courses was introduced. Later in 1967, a two year program was sponsored by the agriculture department and a three year program by the biology department. By 1974, a three year curriculum of specific courses was available with a major in either department. The students completed their fourth year at Auburn, Tuskegee or Ohio State and received their degree in biology at Eastern.

Pre-nursing was another program mentioned annually in the general catalogue beginning in 1947, but no planned curriculum was offered to the students until 1966 when a Department of Nursing was created in the College of Applied Arts and Sciences. Previously a few students did take some pre-medical courses in biology, chemistry and home economics before leaving to enter a school of nursing or a hospital for training.

A two-year pre-forestry management curriculum was offered students beginning in 1959 as a result of a few biology majors indicating an interest in this field. This was revised in 1961 to meet the requirements of the forestry school at North Carolina State College where Eastern students went to obtain a degree in forestry. In 1967 a three-year curriculum was developed with the cooperation of the agriculture department; a fourth year in an accredited forestry school could be transferred back to Eastern to complete the requirements for a B.S. degree in biology. Only a few changes in course requirements have been made since.

Graduate programs. Eastern began to offer graduate work in 1935 with a major in Education. The Master of Arts in Education degree required one half of the work to be in education and the remainder in academic courses. This program was given no attention by the biology department before 1936 when the program was discontinued.

When the graduate program was resumed in 1940, the master's degree program required eighteen hours in education (including a thesis), a minimum of eight hours in a minor, and a total of thirty semester hours. The degrees were recognized simply as Master of Arts in Education with no recognition on the minor in most cases. Several biology majors obtained the M.A.Ed. degree under this program, but unfortunately the names of these are difficult to identify.

On the encouragement of Dean W. J. Moore in 1945-46, plans were developed for the beginning of a graduate program in biology. This was reinforced by talk around the state of improving the quality of teachers in public schools. By 1949, Eastern had revised its graduate program to delete the educational thesis, and to require nine hours of education and fifteen to twenty one hours in subject area or areas.

The first graduate course in biology, BIO 51 Biological Preparation, was offered in the summer of 1947 and the first M.A.Ed. degree with emphasis in biology was awarded to Cephias Bevins in 1948. In the following year similar degrees were awarded to Eldred Carmack and Dill Asher. Others receiving degrees from Eastern Kentucky State College will be found in the next chapter.

By 1963 concepts were well formed among the faculty regarding the needs of science teachers in the public schools--those being good foundations in the subject they were to teach. It was also recognized that the number of undergraduate majors in biology who were planning to teach was declining and more students were attempting to enter special fields. Between 1955 and 1960 there was a growing interest in faculty research and in providing research projects for undergraduate students, both for credit and just for the experience. The major apparent handicap was equipment. To meet this deficiency plans were formulated to properly equip certain selected subject areas in the department for research. This was

done under the pretention of needing equipment to maintain standards in regular courses. The concept of scientific research was new to the university officials and not openly supported although literature research was common in departments other than natural sciences. An intra-departmental system of budgeting monies to each course introduced several years prior to this date by the faculty was padded to include research expenses. As research equipment was procured, special project courses at the undergraduate level were used by interested students.

Faculty interest in research increased with the addition of new members fresh from research experiences in graduate schools. The rapid turnover of faculty in the early 1960's served one good purpose--to bring a variety of ideas on graduate programs to the department.

Application in 1965 for permission to offer a Master of Science degree in Biology in 1966 was deferred by the administration on the grounds that the reference materials in the library were inadequate. The biology faculty who had been involved in research since 1955 had realized this and had prepared a list of library deficiencies. Each item was classified as either "essential" or "optional." This list submitted in 1965 to the library officials reportedly became buried or temporarily lost in the library and was not processed until a year later. Graduate students seeking the Master of Science degree in biology did enroll as early as 1965 under the M.A.Ed. program in spite of this and the library facilities of other universities, especially those of the University of Kentucky, graciously assisted our students in their literature studies. Approval for the Master of Science in Biology degree was finally made in 1967. The fall semester opened with sixteen graduate students enrolled. The first M.S. degree at Eastern was awarded in 1968 to Jerry Howell who had first enrolled in graduate school under the M.A.Ed. program, taking courses which would meet the proposed requirements for a M.S. degree.

Three new courses were added in 1965 to make a total of nine being available at the 500 level. The three courses added were BIO 571, 572 and 573 Research and Thesis Seminar I, II and III. These together with the ten courses at the 400 level constituted the total potential for graduate work for the biologist seeking the Master of Science degree.

The general purposes of the Master of Science program in biology at its initiation were to provide biological knowledge to those science teachers who especially wanted it for their use in public schools and junior colleges, and to provide research opportunities and advanced work in a special field of biology for those students who aspired to enter the fields of industry and research. With the change of status from a college to a university in 1966 more emphasis was placed on techniques used in acquiring biological knowledge, on pure research and on greater depth (specialization) in certain areas of biology not being covered by other institutions of higher learning in Kentucky.

Teacher training courses. Providing training for undergraduate students planning to teach was stressed throughout the 1950's. The BIO 51 Methods in Biology introduced in 1947 was continued as SCI 471 and then BIO 471. While the Department of Education differed at times from this philosophy, it was the belief of the biology faculty that as trained biologists they knew better than those trained in the theory of education how to handle and make use of live plants and animals in the laboratory and how to conduct experiments so they would be meaningful and carry some scientific significance. Consequently the Department of Biology insisted on teaching a methods course which would be practical for the biology teacher and did so until it was removed to the Department of Education in 1969 by the administration in spite of the best thinking of the biology faculty. This was done with the understanding that a specially trained

biology faculty member would teach the course. However, this arrangement was not followed after a couple of years, and since, the biology department has had little to say concerning the content of a teacher training course in biology.

In addition to the 471 methods course, a group of new courses were added in 1962 to 1965 in order to give proper credit to in-service teachers during the science teacher training institutes held on campus.

BIO 511	Biology for the Elementary Teacher
BIO 360	Fundamentals of Biology I
BIO 361	Fundamentals of Biology II
BIO 401	Biology for High School Teachers I
BIO 402	Biology for High School Teachers II

These courses did reflect the desire of the department to help public school teachers improve biological science programs in their schools.

Junior Kentucky Academy of Science. The teacher and the pupil in the public schools historically were in the fore front of the programs promoted and supported by the biology department. Dr. Anna A. Schnieb, Ph.D., University of Vienna, and Professor of Education at Eastern, was most enthusiastically interested in biology and nature study and at times taught some courses of general nature in the department. In 1934 she took the initiative to organize the Kentucky Junior Academy of Sciences for the benefit of high school students interested in science. Only high school science clubs could join the Junior Academy. Each year competition among members in the individual school clubs preceeded the contests between the clubs in the various schools. Students representing the best of their club and school entered into state-wide competition in categories of their choice and interest in astronomy, biology, chemistry, geology and physics. The experiments and demonstrations were original with the student and were judged by faculty from the colleges and universities of the state. Science papers written by students were also read and judged. Awards

were given in each category and a banquet was usually held to recognize some of the more outstanding students and clubs.

The biology department at Eastern was a strong supporter of this program, and when Dr. Schnieb retired in 1952, it was necessary to find a replacement to sponsor and direct the Junior Kentucky Academy of Science. Dr. LaFuze volunteered to serve as state director until a permanent director could be obtained. Chemistry faculty members from University of Kentucky and Eastern Kentucky University have served as directors; the present director is Dr. William Martin, Professor of Biological Science at Eastern.

Science for elementary teachers. For many years, since normal school days, nature study had been taught at intervals by several different persons for the benefit of young people and adults alike. Dr. Anna Schnieb, professor of psychology, was the first instructor to teach Nature Study as a preparatory course for elementary school teachers. Her classroom was a living laboratory containing growing plants, an active bee hive, aquarium terraria, bird cages, unusual plants, animals, and rocks, collections of colored leaves, of insects or of other outdoor "things." Her method of teaching was unique. When something new had been brought into her classroom, regardless of which course was being taught, her classic question at the beginning of each class period was "Have you noticed anything new in the room today?" Dr. Schnieb was a disciplinarian of an old school, and an individualist with strong convictions and deep interests.

In the 1950's, there was a strong movement in Kentucky away from a study of nature in the grades and toward an understanding of experimental aspects of pure science in physics, chemistry, biology and geology. Courses taught prior to this date were of a nature lore type, involving scrapbooks, collecting, life histories, etc. Elementary teachers were not prepared for this shift although

national educators had been promoting the idea for some time and science readers of the new type were being published by the book companies and being adopted by the public schools.

Science programs for grades 4-8 or 1-9 were being planned and science content was being reorganized in public school systems by the local teachers commonly under the guidance of the high school science teacher. In some schools the new science readers were simply adopted and the teachers tried to follow them. Larger schools, such as Louisville, however, completely rewrote and created their own science program for grades K-12 under the leadership of knowledgable and qualified persons.

Many of the teachers in smaller public schools did not themselves understand the principles that they were trying to teach, because the colleges had not included this type of information in the elementary teacher training curriculum. Dr. LaFuze, realizing this deficiency, developed a series of experiments and a curriculum pattern for public schools, and presented parts of these in science institutes held at several schools in eastern Kentucky. At one time he addressed the Elementary Section of the Kentucky Education Association annual meeting in Louisville to promote the new approach to science in grades K-9. In 1952 he co-sponsored the first experimental course of this type at the college level in Kentucky for public school teachers in a National Science Foundation Institute at the University of Kentucky.

Little enthusiasm for this kind of science for elementary schools was generated at this time within the department of education and the administration at Eastern. Being a strong advocate for an up-to-date science program for the grade schools, Dr. LaFuze began in the early 1950's to substitute subject matter and the new science approach into the SCI 362 Nature Study course as an experiment and an example to the administration.

Basic scientific principles which are a part of our every day living were carefully selected and graded to the age level of the child. These were integrated into a total science curriculum beginning with kindergarten and continuing through grade 9 as a general science, to be followed in grades 10-12 by special courses such as chemistry, physics, biology, physiology, and certain even more advanced courses, depending upon the qualifications of the science faculty of the school. Of major importance in the new K-9 program was the introduction of science principles and information at the proper time at which the child's mind could understand and be receptive to them. This concept created much enthusiasm and interest among the in-service teachers who had returned to college to prepare themselves to better teach science in their schools as well as the younger prospective teachers. It frequently offered information and explanations which they had not understood in previous science courses.

It was not until 1961, eight years later and after other colleges had endorsed this type of program, that the course SCI 351 Science for Elementary Teachers, was officially approved by the administration at Eastern. Instructors especially trained in science were employed to succeed Dr. LaFuze and teach the course in as practical way as possible.

Mr. Alan Maxwell, 1963-64; A.B.; M.Ed., University of Virginia.
Mr. Harold Webster, 1964-66; B.S.; M.A., University of Alabama.
Ms. Catherine Dale, 1966-68; A.B.; A.M.T., Indiana University.
Dr. Thomas Johnston, 1967-69; B.S., M.S.; Ph.D., University of Nebraska.

While it was not a biology course, the instructor was assigned to that department because of the interest of the biology faculty in the developing of the course and improving science teaching at the elementary level. The course was renumbered SCI 475, Science for Elementary Teachers, in 1966. From the beginning the course was of a laboratory type, concerned with making equipment cheaply for

experiments, teaching how children might perform experiments themselves with understanding, and planning a graded science program for grades K-9.

In 1969 the College of Education took charge of the course with the understanding that the instructor would be approved by the sciences before appointment, but this latter condition was adhered to only for a couple of years.

General education courses in biology. Prior to 1965, according to the college catalogues, all departments except Industrial Arts and Mathematics included at least biology electives in their general education programs. Many departments provided for the optional selection of SCI 111-112, Biological Science, and several specified these courses as a part of their general education programs. Biology courses taught for general education purposes in 1948 included

SCI 111, 112	Biological Science
BIO 121	General Botany
BIO 122	Animal Science

In 1966 general education courses in biology included

GSC 161, 162	Biological Science
BIO 131	General Botany
BIO 141	General Zoology
BIO 403	Human Heredity and Eugenics
BIO 404	Economic Plants

Those students in their junior or senior years were encouraged to enroll in BIO 403 and 404 instead of the freshman courses.

SCI 111 had its origin in 1934 as one of two courses entitled Introduction to Science. It was renamed in the following year as SCI 111, Survey of Science. This was a companion course to SCI 110 which dealt with the physical sciences. The purpose of these courses was to meet the science requirements for elementary majors and for others who needed general information in the science

field. The content appeared to be little more than a review of high school biology, chemistry and physics with a dash of geology and astronomy added--all taught in a more or less sophisticated way in two semesters.

SCI 111 and 112 were lecture courses in which motion pictures were shown to furnish visual contact with plant and animal phenomena. The emphasis was on man, and brief surveys of evolution and of the plant and animal kingdoms were included. In the change from semester to quarter systems, SCI 111 became SCI 11, while the physical science course, SCI 110, was divided into SCI 10 and 12. Later, in 1948, and with the return of the semester system, the entire general education program in science was revised and up-graded to include SCI 111 and 112, Biological Science I and II, and SCI 109 and 110 as courses in the physical sciences. The sequence of 109, 110, 111 and 112 was made with the expectations that the physical science courses would be completed by the student before enrolling in the biological courses. The students, however, did not always follow this plan and sometimes reversed the sequence or attempted to avoid the physical science altogether. Each course was given three semester hours of credit.

At times, especially in the early experiences of the general education science program all faculty in biology, chemistry and physics, at the strong suggestion of then President H. L. Donovan, pooled their faculty resources and taught all courses without regard to departmental divisions. Dr. Donovan was a nationally known leader in education and no doubt the concept for these courses and how they should be taught was initiated by him. He believed that to make them serve as truly general education to the students, any faculty members with a doctorate degree in a science subject should be able to teach any general education science course; he believed this would insure against specialization

within the general education courses. Thus biologists taught some physical science and the physicists and chemists taught some biological science. Syllabi of topics and time schedules were provided for all to follow but each instructor was free to develop the content of each topic and teach it in his own way.

The testing program was interesting. Multiple choice examination questions prepared by the participating faculty members were pooled and then divided into as many sets as there were lecture sections so that each student received questions from each participating instructor. Answers were recorded and graded using an ingenious device invented by Dr. Noel Cuff, a professor in psychology. A sheet of thin tissue paper was placed between two cardboards which were hinged at the top. The cardboards had been manufactured with one hundred rows of four pencil sized holes. Each hole in a row was labelled A, B, C and D, to correspond to the lettered multiple choice answers, and each row was numbered to correspond with the number of a question. The student recorded his choice of correct answer by using a pencil point to punch a hole through the tissue. To change his answer, the student tore off a small piece of tissue, moistened it with saliva and pasted over the hole, and then punched another hole for a possibly more correct answer. The answer boards were collected and placed on a machine having one hundred plungers set to record the correct answers to the questions. The plungers, each weighing exactly two ounces, were weighed as they passed through the holes and rested on a flat scale pan, the total weight of the plungers respresenting a positive score. Grading was quick and surprisingly accurate. All scores were pooled and listed from highest to lowest. At a meeting of the instructors involved, breaking points between letter grades were arbitrarily determined by the gaps in the list of grades with an effort to distribute the A, B, C and D grades according to an approximate 1-2-4-2 ratio. The low passing grade varied between 50 and 59 percent, but never below 50 percent.

During World War II years these courses were not offered regularly due to shortage of faculty and to demands for major courses by biology students. Following the war there was no initiative on the part of the physical sciences to revive the general education type courses. The biology department reintroduced general education biology courses as BIO 14a and BIO 14b, Biological Science. It was felt that general education science courses should be available to non-science majors rather than to expect these students to compete with biology majors in major courses, and that more emphasis should be given to the biological sciences in the general education program. In addition, a laboratory period was introduced to increase interest by bringing the student in closer contact with the material studied. In 1948, Dr. LaFuze went to Northwestern University to attend a general education science workshop where the purposes and methods in general education science were studied and where a course syllabus for SCI 111 and SCI 112, Biological Science, was prepared. He also started one for the physical sciences but it was never completed. The biological science syllabus was published in 1948 under the title of Biology and Man and was used for several years by the biology faculty, who, for the first time, were the only instructors for the biological science courses. For content, biological topics were selected on the basis of importance to mankind and each was developed to some depth by each respective instructor. Some major topics included were human physiology, inheritance, disease, biological warfare, how plants and animals affect man, and reproduction in man.

As laboratory space in the Roark Building became a premium in the early 1950's the laboratory sessions were discontinued to the happiness of a few students but to the regret of many of the more industrious. Upon the plea of students to let them see the plants and animals they were studying through

lecture and text, the faculty agreed in 1953 that the course, to be effective as a natural science course, should be taught with a laboratory or not at all. On moving into Memorial Science Hall, laboratories were again added and they have been a part of the course now for the last twenty years. At times the administration has strongly suggested that the laboratory instruction is too costly for such a large number of students and should be discontinued, but the biology faculty have persistently insisted that laboratory is a very important part of a science course.

In the late 1950's and early 1960's, the grading scale consisted of a ratio of 1-2-4-2 for the A-B-C-D grades. A cut off between D and F was frequently at 55 percent regardless of the number of F's. A few faculty followed the 10-20-40-20-10 percent distribution recommended by educationalists but it was felt this did not offer enough incentive for perfection. Most faculty preferred 90, 80, 70, 60 percents or 88, 77, 66, 55 percents for the lows of A, B, C, D grades, thus placing more responsibility on the student for achievement by causing him to reach for a goal.

With employment of faculty specifically trained in botany or zoology, with some having had a lot of courses in one but one or few courses in the other, it was considered desirable by the departmental faculty to reverse the trend of the late thirties and use botanists to teach about plants and zoologists to teach about animals. It was felt more enthusiasm and greater interest could be generated among the students by this arrangement. In 1966 the courses were renumbered GSC 161, Plant Science, and GSC 162, Animal Science, and were strengthened to ensure an above-high-school level of content. This seemed necessary since science instruction in the high schools had improved and many students enrolled in the biological science courses appeared bored with the repetition. Textbooks in

plant science and animal science were used and the courses became miniature botany and zoology courses.

In 1962-65 the concept of audio-tutorial instruction received a lot of attention across the country. Several universities were successfully using this type of instruction. Some of these universities were visited and plans for an audio-tutorial program in GSC 161, Plant Science, were proposed to the administration. Upon its approval a room in Memorial Science Building was set aside for installing tape players, laboratory tables and student work booths. The advantages over the standard laboratory were to permit each student to progress through the day's work at his own speed, to offer more laboratory sections some of which could overlap and thus accommodate more students per day, and to save time and money in preparation and instruction. The student received instruction and directions from tape players equipped with ear phones, made observations at various stations in the laboratory, performed experiments independently and observed other experiments and demonstrations set up for them--as fast as they were able to comprehend. It was possible for a student to repeat any section of the assignment as often as he wished. Some students with good background finished in less than the prescribed time while others with less fortunate backgrounds or less aggressiveness returned later in the week for additional work.

Some of the faculty were employed with the general education courses in mind. These were generally without doctorate degrees--those with doctorate degrees appeared to have little interest in general education courses. As enrollment increased, problems of laboratory instructors increased. Local persons such as those who had majored in biology while attending college were employed part time as laboratory instructors while full time faculty remained responsible for the organization, planning and lecturing in the course. Some of these laboratory instructors were as follow.

Ms. Opal Patterson
Ms. Margaret Thurman
Ms. Neoma Prizendine
Ms. Ann Bendall
Ms. Katherine Houp
Ms. Patricia Keefe
Ms. Maria del Reyes
Ms. Jackie Schroeder

In addition, several students also were employed to assist in some of these laboratories. Each appeared to take his assignment seriously and some seemed to be fully as helpful in the laboratories as the regular faculty.

Dr. Lillian Miller who had been associated with the tutorial system at Purdue University was employed as a director to perfect and develop the program at Eastern. However, after a year and a half, some problems arose between her, the students and the department and she left the institution in 1967 without fully accomplishing the goals set. Dr. LaFuze assumed the directorship and proceeded to rebuild the program during 1967-69.

Dr. Wallace Dixon, a specialist in general science education, was added to the faculty in 1968 to succeed Dr. Miller. A year later, Dr. LaFuze was removed from general education biology by Dean Ogden and Dr. Hess, the new chairman of the Department of Biological Sciences, to reorganize and teach BIO 131, General Botany. The tutorial program was abandoned a couple of years later in favor of standard type laboratories. The tutorial system proved to be successful from the point of view of the student but it demanded inspirational leadership dedicated toward the tutorial system of teaching, and this did not seem apparent among the faculty at Eastern who became involved with the courses.

With a change in academic administrators in the mid-1960's there came a change in philosophy and organization at the administrative level which affected general education courses in all departments. GSC 161 and 162, along with

comparable courses in the physical sciences were removed by the administration in 1966 against the best judgement of the faculties involved, from the College of Arts and Sciences and placed in Central University College (to be discussed in the next chapter). This was decided without consultation with the chairman of the Department of Biological Sciences and the same might be assumed for other departments involved. This provided CUC with courses over which it could have some authority and control. Later it became necessary to also transfer faculty from the College of Arts and Sciences to Central University College to more effectively control the general education program.

In 1969, under the direction of Dr. Dixon of Central University College, two new courses were organized as GSC 261, Biological Science A, and GSC 262, Biological Science B; these were patterned from the original GSC 161 and GSC 162 courses but emphasized more of a philosophical-moleculary-evolutionary approach. A year later the GSC 161 and GSC 162 were offered back to the College of Arts and Sciences where they exist today as BIO 161, Environmental Plant Science, and BIO 162, Environmental Animal Science. Functionally the two series of courses in general education biology located in the separate colleges were the same, being taught with the same goal, that of providing general education in the biological sciences.

Biology for non-biology majors. Biology has supplied supporting courses for six departments during this eighteen year period. In a reciprocating agreement between biology, chemistry and physics departments, each required courses in the other two as part of the general education program. Physics and chemistry each required BIO 121-122, General Biology, and in later years either BIO 131-132, General Botany, or BIO 141-142, General Zoology, until 1964 when physics deleted all biology requirements.

Agriculture majors made use of BIO 121-122, General Biology, and later BIO 131, General Botany, and BIO 303, Bacteriology.

Health and physical education students made use of SCI 111-112, Biological Science, and BIO 225-229 Anatomy and Physiology as background for their major courses. The anatomy and physiology courses were tailored specifically for physical education majors. In 1966 SCI 112 (mostly plant science and inheritance) was deleted because of its alleged unrelatedness to health and physical education, and BIO 272-275 (formerly BIO 225-229) were deleted reportedly in belief by the physical education department that it could better teach the courses with fewer failures among their students. The biology department assisted the physical education faculty in equipping their anatomy laboratory, but in the following year the physiology was reinstated as BIO 301 and BIO 378. By 1971 the anatomy course BIO 171 (replacing the original BIO 225) was also returned to the biology department.

Home economics varied their requirements from just BIO 219, Physiology (designed for home economics and general education), to SCI 111-112, Biological Science, and later to SCI 111 and BIO 219, and at another time to SCI 111, BIO 219 and BIO 303, Bacteriology. While they desired all the courses as background, their vocational curriculum was apparently limited by government regulations and the supporting courses for their curriculum were sacrificed for more courses in home economics. By 1974 the home economics department was reorganized into several areas, each having different curricula. Biology courses used in some of these curricula were BIO 301, Human Physiology, BIO 378, Applied Physiology, BIO 221, Principles of Microbiology, and BIO 273, Clinical Microbiology.

Faculty. During the period of rapid institutional and departmental growth in the two decades following 1947, faculty were employed from eighteen

different universities in all parts of the country from Massachusetts to Colorado and from Michigan to Louisiana. Four institutions furnishing the largest number of new faculty were the University of Illinois, Purdue University, University of Kentucky and University of Tennessee. The biology department at Eastern had the benefit of the different philosophies, experiences and ideals supplied by the faculty of these many institutions.

In 1947 there were only two faculty members teaching biology on the campus. These and the courses they taught were as follow.

Dr. H. H. LaFuze, 1939- ----. A.B., M.S.; Ph.D., University of Iowa. Botany, genetics, local flora, woody plants, eugenics, economic plants, plant morphology, biological science, biological methods, science for elementary teachers.

Dr. William Hopp, 1947-1955. A.B., M.S.; Ph.D., Purdue University. Zoology, comparative anatomy, human physiology, histology, animal physiology, bird study, field zoology, invertebrate zoology, economic entomology, nature study, biological science.

It has been said by his contemporaries that Dr. Hopp could sit on the corner of a table and teach more meaningful and significant biology in fifteen minutes than another professor could in an hour lecture. His firmness was camoflouged by his personality and his personality captured his audience. He assisted in planning Memorial Science Building and promoting the department in general. He was also remembered for his demonstrations of hypnotism before student groups, for science programs in public schools and in community organizations, and for his participation in educational television. He left Eastern in 1954 to go to his alma mater university where he had been promised a nice promotion.

Twenty four faculty were employed between 1948 and 1966. Of these, eleven were teaching in 1966-67. This represents an increase in staff of 550 percent in spite of over fifty percent turnover in employment. The 1950's and early 1960's were years of rapid growth in student body for Eastern as well as

for other institutions over the country, and additional faculty had to be employed. The scarcity of qualified faculty made it more easy for those seeking employment to "shop" for the best positions and the most money. In addition, the salary schedule for Eastern faculty was below that of institutions in neighboring states and the better qualified personnel, particularly those with doctorate degrees, could not be interested in coming to Eastern. This accounted in part for the employment of a large number of faculty with only the Master of Science degree. At the same time the institution was undergoing changes in organization and philosophy; this was augmented by the change of presidents and the trend toward university status.

Needless to say some faculty more than others contributed greatly to the development and health of the department. It would be difficult to evaluate these individually, but some comments might be due to those who faithfully remained at Eastern for a number of years. Five of the twenty-four remained on the staff into the 1970's.

Mr. A. L. Whitt, 1948- ----. B.S.; M.A., University of Kentucky; additional academic work equivalent to that required for a doctorate.
Comparative anatomy, zoology, histology, embryology, microtechnique, ornithology, parasitology, applied anatomy, economic plants, eugenics, biological science.

Mr. Robert S. Larance, 1956-1973. B.S.; M.S., Louisiana State University; additional academic work equivalent to that required for a doctorate.
Bacteriology, botany, local flora, trees, biological science, economic plants, genetics.

Dr. Sanford L. Jones, 1961- ----. B.S., M.S.; Ph.D., Medical School, University of Tennessee.
Animal physiology, human physiology, zoology.

Dr. Donald L. Batch, 1965- ----. B.S., M.S.; Ph.D. University of Illinois.
Zoology, ecology, invertebrate zoology, advanced zoology.

Dr. Branley A. Branson, 1965- ----. A.B., B.S., M.S.; Ph.D., Oklahoma State University.
Zoology, natural history of vertebrates.

Two additional faculty with doctorates remained with Eastern several years before leaving to accept advancements in rank and salaries.

Dr. Harold L. Zimmack, 1956-1962. B.S., M.S.; Ph.D., Iowa State University. Zoology, field zoology, entomology, physiology, birds, biological science.

Dr. Ronald A. deLanglade, 1964-1966. B.A., M.S.; Ph.D. Purdue University. Botany, plant morphology, local flora.

Mr. A. L. Whitt served as assistant to the chairman in planning for the growth of the departmental curriculum, planning for two new science buildings, teaching and developing pre-medical and field zoology courses, promoting the laboratory technician program, introducing research and publishing. He conscientiously served on numerous university committees, was very active with the biology club, and represented the department and the university in the community and on numerous public school programs. His opinions were welcomed, even though they often differed from those of others including the chairman, because they were rational and to the point.

Mr. Robert Larance joined the faculty as an instructor in bacteriology and botany. He retired in 1972 because of ill health and deceased in January, 1973, following a series of heart attacks. Mr. Larance had many fine attributes. He loved to teach—he loved to work—he loved students, and they loved him, probably partly because of his caring. When preparing for lectures or laboratories, he was very thorough and, while not always up-to-date with the latest information, his presentation was given with the student's capacity in mind and with an effort toward having the student understand.

A memorial to Robert Larance consisting of an annual scholarship award to an outstanding botany major was established in 1973 by alumni, friends and his wife, Mrs. Libbye Larance, and a plaque pertaining to this award was placed in the hallway on the biology floor of Moore Science Building. Karen Louise

Schaffer was the first to receive the award and Joyce Lynn Sutphin received it in 1974.

Dr. Sanford Jones was employed because of his training in medical physiology; he was to improve and up-date the physiology program at Eastern. He proved to be a strong and persistent professor highly knowledgable in the field of physiology. He was instrumental in interesting a number of students in research and instrumentation. He served as advisor for pre-medical students and others who desired to enter some phase of the medical profession. His sound judgements on right and wrong and his rational opinions have been most valuable to the chairman and a benefit to the department.

Dr. Donald Batch and Dr. Branley Branson were added to the staff in 1965 to promote the environmental and field biology program and give support to the wildlife program which was being introduced. Together and separately, they did much through their own work to increase the tempo and quality of the research program in out-door biology involving invertebrates, lower vertebrates, fishes, water pollution, and faunas in geographical areas of Kentucky and many other states. Dr. Batch in his honest and sincere way aided in stabilizing the department and demonstrated leadership capacity during the first year he was on the faculty. Dr. Branson had a drive for research and a knowledge of graduate school functions which proved valuable in establishing the graduate program in biology and improving the quality of both the biology program and that of the Graduate School of the university.

Drs. Harry Zimmack and Ron deLanglade, while at Eastern for only a few years, made positive and impressionable contributions to the department in the planning of curricula, developing course content and determining departmental policies. Dr. Zimmack, a zoologist, set up a research laboratory in his office

(the first in the history of the department) and promoted field zoology as a course for majors. Dr. deLanglade made improvements in botany and plant morphology courses as well as promoting changes in the general curriculum. Both were strong in their respective ways and each left Eastern to positions of greater stature in other universities.

Seventeen faculty holding only the bachelor's or both the bachelor's and master's degrees were also employed during the period when Eastern was known as Eastern Kentucky State College. The principle courses each taught are given below.

Mr. Dennis G. Rainey, 1955-1956. A.B.; M.S., University of Arkansas, candidate for doctorate.
Applied anatomy, genetics, parasitology, biological science, nature study.

Mr. William T. Soper, 1955-1956. B.S., University of Kentucky.
Bacteriology, biological science.

Mr. Carlton Heckrotte, 1959-1962. B.S.; M.S., University of Illinois, candidate for doctorate.
Zoology, genetics, human physiology, ecology, biological science.

Mr. E. Daniel Schreiber, 1960-1963. B.S.; M.A., George Peabody College for Teachers.
Plant morphology, human physiology, biological science, economic plants, ornithology.

Ms. Carolyn H. Schottland, 1961-1962. B.A.; M.A., Vanderbilt University.
Biological science.

Mr. Thomas A. Hutto, 1961-1963. B.S.Ed.; M.Ed., University of Georgia, candidate for doctorate.
Plant physiology, plant morphology, economic plants, biological science, eugenics.

Mr. Arthur L. Jackson, 1961-1964. A.B.; M.A., Southern Illinois University.
Biological science, zoology, human physiology.

Mr. O. Ray Jordan, 1962-1965. B.S.; M.S., University of Virginia, candidate for doctorate.
Zoology, vertebrate natural history, human physiology, teaching biology.

Ms. Marilyn L. Cole, 1962-1964. B.S.; M.S., Purdue University.
Human physiology, applied anatomy, embryology, biological science.

Mr. Charles R. Ferguson, 1962-1964. B.S.; M.S., University of Southern Mississippi.
Biological science, zoology, eugenics.

Mr. James D. Haynes, 1963-1964. B.S.Ed.; M.S., University of Tennessee, candidate for doctorate.
Botany, plant morphology, ecology, economic plants.

Mr. John M. Campbell, 1963-1964. B.S.; M.S., University of Kentucky, candidate for doctorate.
Zoology, entomology, human physiology.

Mr. William S. Broughton, 1964-1965. B.S., University of Georgia.
Plant physiology, botany, biological science.

Mr. Victor Lotrich, 1964-1966. B.A.; M.A., Colorado State College, candidate for doctorate.
Entomology, human physiology, eugenics, biological science, teaching biology.

Mr. Joseph T. Bryan, 1964-1967. B.S.F.; M.S., University of Georgia.
Biological science, human physiology.

Mr. John A. Cheek, 1964-1966. B.A.; M.S., University of Kentucky.
Biological science, human physiology, applied anatomy, ornithology.

Mr. Daniel Matulionus, 1965-1968. B.S.; M.S., University of Illinois.
Zoology, comparative anatomy, applied anatomy, biological science.

A few of this group came to Eastern with their academic work and research for the doctorate degrees completed. Following the presentation of their theses and receiving the Ph.D. degrees, they accepted positions in larger institutions where active research was possible. Most of the remaining faculty in this group were employed with the expectation of their continuing their education.

One facet in the pressure of the administration to improve the faculty at Eastern in order to meet the standards of the national accrediting associations was to encourage those faculty members without doctorates to continue their education. Tenure could be established only after the fifth year of service at Eastern; tenure and promotions were not being assured unless those with master's degrees were making material progress toward doctorate degrees, or at least substantially up-grading themselves academically. Several of the faculty were able natively and financially to do this and after one to three years at Eastern they did leave for this purpose. Both the department and the administration held these men in highest regard, both academically and professionally.

The remaining faculty, forseeing the reality of contracts not being renewed nor promotions being made unless these conditions were met, sought employment in other educational systems or changed professions.

Part time and summer employment was offered to additional persons between 1948 and 1966. Among these were Mr. Brewer, Mr. Ed Keene, Dr. G. B. Pennebaker, Ms. Opel Patterson, Dr. Kim Miller and Dr. Lillian Miller. The latter two were employed as full time teaching faculty for the fall of 1966.

Considering the faculty members as a whole, each came to Eastern with different backgrounds and philosophies. They brought new ideas and fresh enthusiasm; occasionally they insisted their concepts of curriculum and policies should be adopted by the department which made for lively discussions in faculty meetings. This was all good for the department, and in many instances changes were made, sometimes after the faculty member pressing for them had left Eastern. Personalities as well as teaching abilities did vary as would be expected, and the problems arising from these were dealt with through the offices of the departmental chairman and the dean of instruction. However, most of those employed were dedicated to teaching, having a good knowledge of their subject, having sometimes wondrous abilities to teach and create interest, and having some compassion for both those students who were capable and successful and those who did not easily comprehend what college was all about or had difficulties even though they were willing. Transfer students voiced their approval and appreciation for being able to easily meet with and obtain counselling from the faculty, something they had not experienced in other institutions they had attended.

In 1960 Dr. Robert R. Martin became the sixth president of the university and blessed Eastern with his unusual abilities to look into the future. He was responsible for the development of guidelines for expanding the academic

area as well as the physical plant. There were those though that felt he may have been more interested in physical expansion and that he left the academic program to the academic dean. The changes, while in the interest of the total institution, were not always to the liking of some of the faculty. Dr. Martin was a dynamic and progressive person who saw no point in standing still if there was some place to go. He seemed to have a philosophy closely related to a biological principle involving plants, "to remain alive is to grow." The restlessness of the faculty was also augmented by an effort on the part of the institution to remain accredited by the associations which evaluated institutions of higher learning. One of the goals in this direction was to increase the percentage of faculty with doctoral degrees. This was quite necessary if graduate courses were to be taught and graduate programs were to be developed, a goal that Dr. LaFuze as chairman of the department had had in mind since in the early 1950's. Many of those employed in biology did not have their doctoral degrees because doctorates were not employable at the salaries Eastern was offering then and there were not enough biologists with doctoral degrees being produced to meet the demandsof all institutions.

The percentage of doctorates dropped from 100 percent in 1947 with two faculty members to 33 percent in 1960 with six faculty on the staff. After 1963 it began to climb and by 1966 before becoming a university it had reached 45 percent of the eleven full time faculty members teaching biology.

Faculty meetings. Prior to 1955, the two or three members of the biology faculty usually held conferences in the hallway or in each other's offices to conduct departmental business. However, as the number of faculty increased in the late 1950's, formal meetings were called at intervals and as necessary. With the appointment of the several deans to replace Dean W. J. Moore

in 1960, the heads of departments were told (in the case of the biology department by Dean Frederic Ogden) they were no longer "heads" of the departments but would serve henceforth as "chairmen" of departments. The distinction made between the two titles at the time was that a "head" of a department governed the department and made decisions while a "chairman" presided over meetings of the faculty and followed democratic procedures. Regular meetings of the department were held and the faculty schedules were so arranged by the chairman that each faculty member would be free of class assignments at the specified hour so that he could attend. The agenda at the faculty meetings included all matters pertaining to the welfare and operation of the department, and each faculty member was privileged to introduce a topic for discussion and action. Most of the faculty took part in the meetings which were presided over by the chairman; freedom of expression and opinion was welcomed and, in the case of most faculty members, was practiced. Needless to say, decisions made by voting in the meetings were always subject to approval by those offices in the administration which were concerned; and sometimes the faculty action was nullified or reversed.

Departmental self-study. In 1964-65 the entire university was engaged in a self-study and evaluation process under the direction of the Southern Association of Colleges and Schools and the National Council for Accreditation of Teacher Education. This had been scheduled for an earlier year, but due to the recent change of presidents a delay of time was requested for the new president to become fully acquainted with the university. The Department of Biological Sciences took advantage of this delay and in the two or three years prior to 1964 made a major effort to improve possible weaknesses especially in the curricula, the library holdings, the teaching equipment, and the policies involving faculty within the department.

The results of the self-study were printed in Departmental Self-Study--Biology Department by Eastern Kentucky University in 1965. The following citations have not been well covered in this history and may be interesting in that they present viewpoints of the biology faculty members who prepared the report.

The program and purposes of the department	p. 1
Teaching effectiveness	p. 7
Recommended changes in departmental policies	p. 17
Reply by the chairman of the department	p. 19
Recommendations for the future	p. 20

The department did not receive criticisms or recommendations from the accrediting agencies, nor from the university. The values gained from the self-study seemed to come from the preparation itself and the cooperative effort of the faculty members working together in an open-minded way toward a self-realization of what and where improvements could be made. It served to create a togetherness among the departmental faculty. Many philosophies and material changes were accomplished in these years prior to 1966 when Eastern became a university.

Biology Club. In 1948 Mr. A. L. Whitt, together with a group of students, organized the Biology Club. Ten years earlier, Dr. T. C. Herndon had organized a Science Club which existed until about 1944, and Dr. Jacob D. Farris had organized a Caduceus Club (pre-medical) which continues to exist today. The biology club meetings were held monthly. Interest of both the students and faculty was great; the faculty participated with the students in all activities. The club was quite active and successful for many years, sponsoring homecoming floats and other entries for the homecoming parade each year, going on three day outings, having picnics and nature walks, promoting educational programs on the campus and hearing lectures by visiting biologists. About 1957, Dr. Harry Zimmack was appointed counselor. Following his leaving Eastern in 1962, Mr. Robert Larance, Ms. Mary McGlasson, Dr. Donald Batch and Dr. Robert Crrek each served

as counselors. In the late 1960's the university set up some rules of conduct for clubs including limitations on methods of raising money for club projects. As the members were individually forced to finance club projects and functions, and as competition from fraternity organizations increased the cost of homecoming floats, etc., and as the faculty increased in number and showed less concern, interest in the biology club declined. For a brief time it sponsored the Audubon Lectures and for the last few years has conducted a used book sale with books donated by students and faculty. The future of the club remains in a balance.

Audubon Lecture Series. In 1960 the biology faculty invited Audubon lecture series to come to Eastern as a part of the program of the general education courses, SCI 161 and 162. The first series of five lectures was given in 1961-62 with good attendance from the students. Dr. LaFuze served as director of the lecture series. Students from freshman classes were expected to attend at first, but this was changed about the second year to an optional program. When the Biology Club began to have financial problems, its members promoted the program by selling tickets, taking tickets at the door and ushering for a part of the profit. In mid 1960's Mr. Whitt succeeded Dr. LaFuze as director and continued in this capacity until the present. Interest on the part of the faculty of the freshman general education courses appeared to have declined to a point approaching non-support. Considerable support had been received, however, from town people and majors in a few other departments. The admission charged for the now four lectures was one dollar per season. The lectures consisted of beautiful films depicting wildlife in a way the average person would otherwise not likely ever see. Many weeks of patient waiting by the photographers were obviously required to produce just part of a film. The lectures, given by nationally

known naturalists, were usually slanted toward conservation, and the beauty and the way of living of wild animals and plants.

O.B.T.A. and S.M.A.P. In the fall of 1960 the National Association of Biology Teachers planned a program which would recognize highly successful teachers of biology in the public schools of each of the 50 states. The name of the program was Outstanding Biology Teacher Award (OBTA). Dr. LaFuze was appointed the first director for the state of Kentucky; he has served in that capacity until the present.

The director formed a committee each year to evaluate the nominations submitted by teachers, students and friends from all over the state. The committee would then consider each nominee; some of the criteria included academic training, continuance of training, teaching experience, teaching success, philosophy of teaching, student opinions, current science interests and personality. Two finalists were visited in their classrooms for a part of the evaluation.

Late in the 1960's the American Optical Company offered a research-type microscope as a part of the award. Announcement of the award was usually made before an audience of over 600 students and teachers assembled for the SMAP program at Eastern and also at the school where the recipient teaches. Certificates were also presented to both the teacher and the school.

Another program also initiated in 1961 was the Science-Mathematics Achievement Program (SMAP), sponsored by the biology, chemistry, mathematics and physics departments of Eastern. Dr. T. C. Herndon, Professor of Chemistry, served as chairman until he retired in 1966. Dr. LaFuze was then appointed chairman and he served until about 1969; he was succeeded by Dr. Charles Helfrich, Professor of Geology.

The Department of Biological Sciences actively supported the SMAP program and benefitted by it in gaining some superior students who were awarded scholarships because of their excellence in the biology tests. The biology test was composed of 100 questions and one essay question. Topics covered included cell structure and function, system of classification, response to environment, anatomy of plants and animals, functions, reproductive processes, genetics, disease and immunity, human anatomy and physiology, development of embryos, and analysis of observations and data. The biology faculty cooperated in this program in a splendid way--thus promoting biology at Eastern.

6. EASTERN KENTUCKY UNIVERSITY

1966 - 1974

On February 26, 1966, Eastern Kentucky State College became officially known as Eastern Kentucky University. Reorganization of the academic structure and offices had already begun in 1965 with the formation of five schools, namely, Arts and Sciences, Business, Education, Technology, and Graduate Studies. A dean was assigned to each school and an assistant dean appointed for each dean. These eleven administrators working with the Dean of Academic Affairs (later known as Vice-President of Academic Affairs) continued the work of coordinating the academic programs of the university formerly done by Dean W. J. Moore, Dean of Academic Affairs from 1945 to 1965, and his secretaries. The sudden enormous expansion of the administrative structure of the university caused considerable wonderment and discussion among the teaching faculty. Their most immediate concern had to do with the effect of additional administrative salaries on faculty salary raises—especially since faculty salaries at Eastern had not been considered competitive with those in other institutions during the past decade. However, the rapid growth and expansion of the new university offered its own explanation, in part at least, for the necessity of enlarging the administrative division of the institution.

Dr. Moore, one administrator who had actively supported the programs in biology and other sciences and had offered encouragement from time to time, retired as Dean of Academic Affairs in 1965. Dr. Smith Park succeeded Dr. Moore

until Dr. Thomas Stovall arrived from Florida in 1966 to serve as Vice-President of Academic Affairs.

As Eastern officially became a university, the names of four of the schools were changed to colleges and a new Central University College was added. The liberal arts departments were part of the College of Arts and Sciences. The first dean of this college was Dr. Frederic D. Ogden who still serves in that capacity.

1966-1969. The history of the biology department during the first three years following Eastern's becoming a university was full of challenge, excitement, changes and growth. Both existing and new programs, the role of the department in an university atmosphere, course offerings, equipment needs, space use, policies and establishing a permanent faculty—all were studied and improved as the result of the 1964 self-study and as Eastern assumed a university status. It was believed this was the time to determine the status of biology within Eastern Kentucky University and also among sister universities in Kentucky as well as in neighboring states. Probably most exciting of all was the planning and construction of a new science building.

The Moore Building. Growth of the department had arrived at such proportions that by 1966-68, all space in the basement of Memorial Science Building was assigned for use by biology, and occasionally chairs were set up at one end of the basement hallway for special sections. The museum which had occupied a very large room was moved to the University Building, and the room was divided to accommodate a large lecture section which was later replaced by a large laboratory, and two offices for four faculty members. Another room was converted to a biology laboratory and the remaining room was used for biology lectures. And the rock room was used for storage.

The possibility of a new building had been discussed by the science faculty since before 1963, only ten years after the construction of Memorial Science Building. Early in the planning stage it was decided that all lecture rooms were to be located on the first floor, the biology laboratory rooms were to be located on the second floor and the roof (fourth floor), and physics and chemistry laboratories were to share the third floor. To economize, it was decided to plan a building with emphasis on service and function rather than on beauty and style, and to use a modular system in which the laboratory rooms would be of the same size and be self-contained. Each laboratory room would be large enough to store the supplies and equipment used in the courses taught therein. To accomplish this, the walls were to be covered with storage cabinets and tables and no outside windows were to be installed. Preparation rooms with full utilities were to be located between laboratories. All biology offices were to be along the hall at one end of the building on the second floor and small research labs were located along the hall at the opposite end of the building.

Originally, biology planned for twelve laboratory rooms for major courses (general education courses were to remain in Memorial Science Building), but some agreement between physical science departments, the administration and the architect was made unknown to the biology department and plans were drawn for only ten biology laboratories on the second floor with two others going to the physics department. This forced biology to teach different types of laboratories in the same room and eliminated the herbarium completely. The biology department immediately asked for two laboratory rooms in Memorial Science Building and for a time these were granted. But pressures from first, geology, and later, education, caused the herbarium cases to be stored in the plant physiology-morphology laboratory in the Moore Building. A series of animal rooms and a greenhouse

with a potting room were located on the fourth floor.

The biology department fared better with lecture rooms all of which were located on the first floor for easy access to students. One with elevated seats had a capacity of about 260 students, and was fully equipped for projection of film and for sound and lighting control from the lecture table. This room was later named the H. H. LaFuze Room to honor Dr. LaFuze who had been at Eastern since 1939 and had acted for and served as chairman of the department since 1941. A second room with elevated seats had a capacity of about 60 students, and three classrooms each having a capacity for 30 students. Five storage and office rooms assigned to the biology department were also located on the first floor.

This description does not do justice to the Moore Building, named for Dean W. J. Moore; to those devoted to teaching and research it was beautiful—especially to those who had the experience of teaching biology in Memorial Science Building and Roark Building.

From the beginning of the planning period, each room was labelled with its intended use so that each faculty member supplied with a copy of the proposed plan could think of the function of his teaching area in respect to the rest of the department. Rooms with related functions were clustered by agreement among the faculty, and the faculty also agreed to select their own office with those of longest tenure having first choice.

The Moore Building was completed in December, 1967, at an estimated cost of $3,200,000. The move from Memorial Science Building was made between semesters, in January, 1968. All freshman level general education biology classes remained on the first floor and in one laboratory on the second floor of Memorial Science Hall. Animal ecology and certain field zoology courses were also assigned to one laboratory and a storage room on the first floor.

General education. One of the first changes made by the administration of the new university was to transfer courses from the College of Arts and Sciences into Central University College, created to supervise and administer academic counseling, student programs and the general education curriculum for freshman and sophomore students. The biology courses thus involved were SCI 161, Plant Science, and SCI 162, Animal Science. It was understood that the original intention was to have all general education courses listed with Central University College and not have any general courses such as economic plants, human physiology and human heredity taught by the College of Arts and Sciences. This idea appeared to be more of a dream than a possible reality, and was not pursued by Central University College.

The department was led to believe numbers of students played a very important part among the criteria in measuring activity and progress in departments and in appropriating money for instruction. The major courses in biology enrolled 6 to 24 students per section due to the limitations of the laboratory, equipment or expediency, while the general education type courses enrolled 25 to 350 per section and thus accounted for much of the total population enrolled in biology. The removal of several hundred students (about half of the departmental enrollment in biology) from one department would have ultimately made a serious cut in the appropriation of money had not the courses (but not all the students) been returned to the department in 1970. Furthermore, removing courses from a department which was equipped to teach them into a college which had no equipment appeared to the faculty to have dubious merits.

Even more important than that, the manner in which SCI 161 and SCI 162 general education courses were removed created some degree of mistrust and ill feeling between segments of the two colleges, and some of this persists even

today. A meeting of the science faculty was called by Academic Dean Stovall, Central University Dean Lewis, and Arts and Sciences Dean Ogden to discuss and ask for approval of the motion that it would be more expedient to offer general education science courses through Central University College than to leave them in the College of Arts and Sciences. The science departments objected and as conversation and argument continued it became apparent that the decision had been made earlier by the administration and steps had already been taken to make the change. When confronted with this opinion one dean responded, "Hell No! That's not so!" But the science courses were moved--an illogical action in the minds of the teaching faculty, an action which probably will be reversed or at least changed in a few years.

It was the feeling and intent of the departmental chairman and biology faculty that man by his nature should be knowledgeable of his biological makeup and biological environment. Also, it was thought that this was something that should not be turned on through a couple of courses in the first two years of college and turned off for the junior and senior years. The general education program in biology was planned around a general practical knowledge about plants and inheritance in GSC 161, around the nature of the animal kingdom and the development of mankind in GSC 162, around the role of heredity in the expression of human traits and in relation to the welfare of man in BIO 403, and around plants useful and harmful to man in BIO 404. All courses, especially the latter four, were organized and first taught by Dr. LaFuze for the purpose of informing the students about themselves and their relations to nature and about the biological things they use or see.

In 1967 another general education course was added--human physiology. In order to help the home economics and physical education majors and at the same

time make available a general education type of course dealing with the functions of the human body, two service courses were combined and generalized to form a new course, BIO 301, Human Physiology. Then to more completely meet the home economics and health-physical education major requirements, two laboratory sections of one credit hour each were initiated, one for each major, which introduced laboratory concepts peculiar to their respective majors. For example, physical education majors were largely concerned with bone and muscle function while home economics majors were more concerned with hormone, enzyme and reproductive functions; these were emphasized in their respective laboratories. Also in 1967, a course in conservation of wildlife resources (BIO 317) was added because of the current growing concern for our environment and native flora and fauna. A year later, two additional courses were added, an esthetic and practical course about Kentucky birds (BIO 204) and a philosophical and historical approach to biology (BIO 305). The latter, however, did not appeal to the students and was deleted later. The general education courses in biology in 1969 were as follows.

In Central University College
- GSC 161 Plant Science
- GSC 162 Animal Science
- GSC 261 Biological Science A
- GSC 262 Biological Science B

In College of Arts and Sciences
- BIO 131 Botany
- BIO 141 Zoology
- BIO 204 Birds of Kentucky
- BIO 301 Human Physiology
- BIO 305 History and Philosophy of Biology
- BIO 317 Conservation of Wildlife Resources
- BIO 403 Human Heredity and Eugenics
- BIO 404 Economic Plants

While there was a place and use for each general education course in biology, the total number of biology courses in general education indicates at

least two things—the concern of the department to attempt to acquaint students with biological nature which would be in the best interests of our own welfare, and the interdepartmental battle for numbers of students. The latter regretably might have appeared to be of greater importance.

Programs, curricula and courses. Some biology courses were renumbered and up-graded for the benefit of the new graduate students who were now coming to Eastern to work on master's degrees; others were renumbered to better designate a sequence and to signify in what year undergraduate students should best take a course. With more emphasis to be placed on a graduate program, it was evident more courses should be offered at the graduate level. In 1965, there were ten courses offered at the 400 level in which both undergraduates and candidates for the Master of Science degree could enroll, while in 1966 the number was increased to nineteen. Admittedly, some of these were not of graduate calibre for biology majors and this was corrected in 1968 by renumbering five of the courses (genetics, ecology, plant morphology, local flora, and dendrology) to the 300 level and deleting three others from the catalogue, thus producing a better balance of good courses between undergraduate and graduate levels.

The 600 level graduate courses of 1966 consisted of "advanced" courses in botany, zoology and biology, and research. In 1968, these were specifically defined and enlarged upon to produce sixteen courses for biology majors.

BIO 601 Literature of Biology
BIO 605 Development of Biological Thought
BIO 611 Quantitative Biology
BIO 612 Cytology
BIO 613 Cytogenetics
BIO 616 Biogeography
BIO 622 Bacterial Physiology
BIO 625 Plant Morphogenesis
BIO 627 Plant Ecology
BIO 635 Advanced Plant Systematics

BIO 645 Physiological Vertebrate Ecology
BIO 647 Animal Ecology
BIO 649 Experimental Endocrinology
BIO 650 Animal Behavior
BIO 690 Graduate Seminar
BIO 691 Thesis Research

The curricula for majors has remained relatively unchanged during the past decade. In 1966, the curricula for undergraduate biology majors were of two types: those for the majors who expected to receive a teaching certificate and those for the professional biologists who would not teach in the public schools. The basic courses required of both types of majors included biological principles, botany, zoology, microbiology or comparative anatomy. The curriculum "with a teaching certificate" was based on the philosophy that a secondary teacher in biology should not be a specialist in a certain area of biology but should have a general background forming a balance between plants and animals, and between structure, function, and environment. In 1969 the program above the freshman level consisted of one or two courses selected by the student from each of the following groups.

1. Structural group.
   Microbiology, comparative anatomy, plant morphology, plant anatomy, histology, embryology, mycology, phycology.
2. Functional group.
   Plant physiology, animal physiology, endocrinology.
3. Field group.
   Ecology, plant systematics, natural history of invertebrates, ornithology, entomology, mammalogy, herpetology, limnology, ichthyology.
4. Perpetuatory group.
   Genetics, evolution.
5. Biology seminar.

The curriculum "without the right of teaching certificate" permitted greater freedom in choosing courses above the freshman level. Each curriculum was planned individually with the student in consultation with his advisor to

provide the best academic preparation possible for his intended profession. The pattern, however, followed the general philosophy of the teacher preparation program in that as broad a background as possible was offered each student and the student was generally expected to elect at least one course from each of the first four groups in the teaching curriculum and then, if they wished, use the remainder of their time to specialize in any area of biology they might choose. Although presented differently, a similar pattern with fewer choices still existed in 1974, involving at least one course in each of the groups: structural, physiological, genetical, and field type courses.

It was the feeling of the faculty that there was a great deal of duplication of subject matter between the eight semester hours of BIO 131-132, Botany, and the eight hours of BIO 141-142, Zoology, as taught in 1965-1966, especially with respect to theory of taxonomy, general cell and tissue structure, cellular physiology, genetics, ecology and evolutionary theory. These and some other topics were deleted and/or de-emphasized in the botany and zoology courses and were organized into a general biology course, BIO 111, Biology, which was designed as a principles course to furnish an introduction to biology and to precede the new one semester courses, BIO 131, Botany, and BIO 141, Zoology. The result was to reduce sixteen hours of freshman level courses to twelve. A syllabus for BIO 111, Biology, was prepared by a committee and approved by the department but the level of content was pitched by the instructors above the intent of the syllabus and the course was taught on the assumption the students had prior knowledge of some chemistry. Students had such a difficult time the course, rather than dilute the content, was moved in 1969 to a sophomore level and renumbered 211 to follow BIO 131 and BIO 141, as well as CHE 111 General Chemistry. The level at which the course should be taught or whether it should exist at all has been debated.

The number of courses available for offering in 1969 was 51 percent greater than that offered in 1966; 47 courses were listed in 1966 as compared to 71 courses in 1969. The growth was actually greater because there were a number of "dead" courses in the 1966 listing which were never offered. These were removed including some pertaining to the preparation of teachers which were taken by the education department. Lists of those courses added in the three year period after 1966 indicate where growth and activity was most apparent.

In wildlife management.

381 Wildlife Management
382 Wildlife Techniques
489 Field Studies in Wildlife
585 Regional Wildlife
587 Resident Wildlife
589 Migratory Wildlife

In physiology.

510 Quantitative Biology
540 Cell Physiology
550 Animal Behavior
649 Endocrinology
645 Vertebrate Physiological Ecology

In botany.

BIO 524 Phycology
BIO 525 Plant Anatomy
BIO 526 Plant Pathology
BIO 625 Plant Morphogenesis
BIO 627 Plant Ecology
BIO 635 Advanced Plant Systematics

In field zoology.

542 Natural History of Invertebrates
553 Mammalogy
556 Herpetology
557 Ichthyology
558 Limnology
647 Animal Ecology

In fisheries.

561 Fisheries Biology
562 Fisheries Management

In microbiology.

BIO 622 Bacterial Physiology
BIO 527 Immunology

Others.

BIO 514 Evolution
BIO 612 Cytology
BIO 616 Biogeography
BIO 601 Literature of Biology
BIO 605 Development of Biological Thought
BIO 690 Graduate Seminar

Even before 1966 such professors as Mr. Whitt, Drs. Wallace, Batch and Branson were proposing a wildlife program at Eastern because of the market for trained personnel and because of the ideal location in this part of Kentucky for such a program. To their knowledge no other university in Kentucky had made a move in this direction. A few courses were introduced into the biology curriculum

in 1967; also in that year Dr. Rudersdorf and Mr. Lozier were employed to develop and wildlife management program. The departmental faculty worked as a team and with the State Department of Natural Resources throughout 1967-68 to establish a curriculum of eight courses in wildlife management. All of these were at the undergraduate-graduate level; it was anticipated several biology majors who had graduated with a biology major would like to return for a Master of Science degree in Wildlife Management.

When other institutions in Kentucky began talking of introducing wildlife management programs, Dr. LaFuze attempted to spur the development of Eastern's program by initiating action to obtain a state director of wildlife management who would also teach a course or two. Meetings were held in Frankfort in 1968-69 to work out a program and plans for cooperation between state and federal departments. The plans, however, were not realized.

The first courses toward a major in wildlife management were offered in the fall of 1968 and the first majors were graduated in 1970. By 1973 there were 55 students enrolled in wildlife management. At the graduate level David Heuer, John Phillips, John Rench and Bruce Rose were the first to receive the Master of Science degrees in Wildlife Management, in 1974.

Faculty. Sixteen faculty were employed within the three year period of 1966-69; seventy-five percent had doctorate degrees, and one other was employed on the expectation of receiving the Ph.D. degree, but, upon failing to complete the requirements, left Eastern to avoid embarrassment. Seven of the sixteen were still at Eastern in 1974.

Dr. Lillian W. Miller, 1966-1967. B.S., M.S.; Ph.D., Purdue University. Biological science.

Dr. Kim I. Miller, 1966-1967. B.S., M.S.; Ph.D., Purdue University. Botany, genetics, plant taxonomy.

Dr. Thomas L. Keefe, 1966- ---. B.S., M.S.; Ph.D., University of Georgia.
Biological principles, genetics.
Dr. James T. Wallace, 1966-1968. B.S., M.S.; Ph.D., University of Illinois.
Comparative anatomy, human physiology, mamology, quantitative biology.
Ms. Catherine W. Dale, 1966-1968. A.B.; A.M.T., Indiana University.
Biological science, teaching elementary science, teaching biology.
Ms. Mary McGlasson, 1967- ---. A.B.; M.A., Eastern Kentucky University.
Zoology, biological science.
Dr. Eugene Schroeder, 1967-1974. B.S., M.S.; Ph.D., University of Missouri.
Biological principles, embryology, physiological vertebrate ecology.
Mr. Jack Lozier, 1967-1968. A.B., Colorado State University.
Botany, biological science, plant taxonomy, economic plants.
Dr. David Smith, 1967-1969. A.B., M.S.; Ph.D., University of Michigan.
Botany, plant systematics, plant morphology, cytology.
Dr. Ward J. Rudersdorf, 1967- ---. B.S., M.S.; Ph.D., Michigan State University.
Wildlife management, upland game.
Mr. Robert Fulton, 1967-1969. B.S.; M.S., University of Mississippi.
Human physiology, applied physiology, biological science.
Dr. Thomas D. Johnston, B.S., M.S.; Ph.D., University of Nebraska.
Teaching elementary science, biological science.
Dr. Dan R. Varney, 1968- ---. B.A., M.S.; Ph.D., University of Kentucky.
Biological science, botany, plant physiology, cytogenetics, economic plants.
Dr. Raymond B. Otero, 1968- ---. B.S., M.S.; Ph.D., University of Maryland.
Human physiology, applied physiology, microbiology.
Dr. Marvin P. Thompson, 1968- ---. B.S., M.S.; Ph.D., Southern Illinois University.
Comparative anatomy.
Dr. Wallace C. Dixon, 1968- ---. A.B., A.M.; Ph.D., Boston University.
Biological science.
(In Central University College)

During the summer of 1969, four additions were made to the biology staff. Three were selected by the faculty under the chairmanship of Dr. LaFuze. The fourth was selected by a committee of biology faculty headed by Arts and Science Dean Frederic Ogden to fill the facancy of chairmanship created by the resignation of Dr. LaFuze from that position.

Dr. John C. Williams, 1969- ---. B.S., M.S.; Ph.D., University of Louisville.
Dr. William H. Martin, 1969- ---. B.S., M.S.; Ph.D., University of Tennessee.
(In Central University College)

Mr. Roger Castle, 1969-1970. B.S.; M.S., Eastern Kentucky University.
Dr. Edwin A. Hess, 1969- ——. B.S., M.S.; Ph.D., Ohio State University.

As the 1969-70 school year began, there were seventeen full time faculty members in the biology department, fourteen, or 82 percent, of whom had doctorate degrees.

Change of chairmen. Another change happened on June 30, 1969, when Dr. LaFuze resigned from the chairmanship of the department. In giving up this position he asked for permission to assume full time teaching responsibilities and this was granted to his great satisfaction for he loved to work with students and to teach in the classroom and laboratory. The timing of his decision to resign was actually determined by a threatening state of health and failing eyesight. In 1968 he was taken to a hospital with what at first appeared to be a heart attack although later tests showed this was not likely, but that some other malfunction caused symptoms resembling those of a heart disorder. Coincident with this period there seemed to be a few in the department who were vocal to the administration about their displeasures but Dr. LaFuze was unaware of that until two years later. The administration advised him of its opinion that the faculty personnel had been stabilized and the department was in a good status with well-developed and strong programs. In evidence of the former, all seventeen full time faculty who were on the staff in the fall of 1969 were still teaching biology in 1974.

Dr. LaFuze had come to Eastern in the fall of 1939 and was immediately assigned responsibility for all botany courses and nature study. In 1941 he was asked by the offices of the dean and registrar to share some of the responsibilities of the chairman, Dr. Dean Rumbold, who in late years was not always readily available to students and the administration. He began serving as full chairman in 1943 when Dr. Rumbold left the institution to join the U. S. Navy. At times

he also served as confidential counselor to individual faculty members and as mediator between faculty members and between faculty and the administration. Disagreements and criticisms which existed were considered signs of good health; as a whole the morale of the faculty appeared to remain high.

In addition to serving as chairman of the department in the spring semester of 1969, Dr. LaFuze taught a lecture section of GSC 161, Plant Science, involving about 250 students two hours weekly and a lecture section of BIO 403, Human Heredity, to about 30 students three times weekly, and made laboratory preparations for 30 audio-tutorial laboratory sections of Plant Science which involved taping one and a quarter hours of directions for the 550 students, recording this on 30 additional tapes, and preparing experiments and demonstrations--a teaching load of 590 student-contact-lecture credit hours plus an undeterminable number of hours (estimated to be more than 687 student-lab prep-credit hours) for laboratory preparation--a total of over 1200 student-credit hours per week.

The new chairman was selected for recommendation to the administration by a committee of biology faculty. Each faculty member in the department was given an opportunity to meet each candidate and in most cases a personal conference was arranged. The retiring chairman received the courtesy of being introduced to each candidate, but he played no role in the selection process. Dr. Edwin A. Hess was finally selected and was contracted by the administration to serve as chairman with a teaching responsibility for a three-hour course in physiology.

On observing the problems generated in some other departments when changes were made in chairmanships, Dr. LaFuze took some precautions to prevent these in the Department of Biological Sciences. In 1968, he appointed Dr. Jones and Mr. Whitt, both of whom had been in the department longer than other faculty

members, to an Interim Committee and made them knowledgable of the affairs of the department with the suggestion that they work as a committee to acquaint the new chairman with the past and existing programs. He also left an invitation through the committee and Dean Ogden of his willingness to act as a consultant to the new chairman, but at the same time indicated he did not want to initiate interference with the new chairman and his office. Only personal papers were removed from his files so the incoming chairman would have references to past events and to plans for the future. In spite of these efforts toward a smooth change in chairmanships, intradepartmental problems appeared. An atmosphere of antagonism seemed to prevail at times among the faculty.

Dr. Hess received his Ph.D. degree from Ohio University and had taught physiology for a number of years at Northern Illinois University at DeKalb. Coming highly recommended to Eastern in July, 1969, he organized the faculty into five basic committees, each committee being assigned to some portion of the total departmental program. The committees were information and services, equipment and space, curriculum and pre-professional, undergraduate and graduate research, and advisory. The chairman of the department served as chairman of each committee. Initially, these worked diligently to consider as thoroughly as possible problems in their respective areas and reported their recommendations in a meeting of the biology faculty for consideration. Later, however, some committees acted independently of the rest of the faculty.

1969-1974. In these five years, under the chairmanship of Dr. Hess, growth and progress advanced at an ever-increasing pace. Evidences of this will be noted in the following sections of this chapter.

New programs. In 1970 the name, Department of Biological Sciences, was adopted in lieu of Department of Biology since it was possible for students to

obtain degrees in majors other than "biology-teaching" and "biology-nonteaching." The following programs were available in 1974, those indicated by an asterisk being introduced since 1970.

Bachelor of Science degrees
- Biology-teaching
- Biological science
- Botany
- Zoology
- Wildlife management
- Fisheries management
- Medical technology
- *Microbiology
- *Environmental resources

Associate of Arts degree
- *Medical laboratory technician

Graduate degrees
- Master of Arts in Education-Biology (through the College of Education)
- Master of Science

The demand for microbiology and medically related majors and the addition of several courses in this area made possible a major in microbiology, initiated in 1973 by Dr. Raymond Otero, an enthusiastic and industrious person who came to the department in 1968. The enrollment in microbiology major courses more than doubled between 1970 and 1974.

The Environmental Resources major was initiated in 1973 by Dr. Marvin Thompson who foresaw the need of training resource specialists such as park managers, naturalists, reclamation inspectors, land and watershed managers, pollution controllers and conservation educators. The program was interdepartmental with greatest emphasis on biology but included select courses in the departments of recreation, agriculture, geology and geography. It promised to be a rapidly growing program due to the increasing number of jobs available in the environmental professions.

An interdepartmental program initiated in 1972 by the Department of Physics and in which the biology department cooperated was that of Master of Arts in Education--General Science. Other departments cooperating with the physics department in this program were chemistry and geology. The program provided a broad background in all sciences for teachers of general science in junior high schools.

Graduate program. The early history of the graduate program in biology at Eastern was described in the preceeding chapter. The growth of the graduate program is indicated by the availability of courses to graduate students and by the number of degrees granted. The graduate biology courses in 1974 were as follows.

BIO 510 Quantitative Biology
BIO 514 Evolution
BIO 518 Parasitology
BIO 520 Pathogenic Bacteriology
BIO 521 Advanced Plant Ecology
BIO 522 Bacterial Physiology
BIO 523 Mycology
BIO 524 Phycology
BIO 526 Plant Pathology
BIO 527 Immunology
BIO 540 Cellular Physiology
BIO 542 Natural History of Invertebrates
BIO 546 Histology
BIO 547 Comparative Vertebrate Embryology
BIO 549 Endocrinology
BIO 550 Animal Behavior
BIO 553 Mammology
BIO 554 Ornithology
BIO 556 Herpetology
BIO 557 Ichthyology
BIO 558 Limnology
BIO 561 Fisheries Biology
BIO 562 Fisheries Management
BIO 585 Regional Wildlife Ranges
BIO 587 Resident Wildlife Resources
BIO 589 Migratory Wildlife Resources
BIO 597 Instrumentation & Biological Methodology
BIO 598 Special Problems
BIO 599 Topics in Biological Sciences
BIO 601 Scientific Literature in Biology
BIO 602 Selected Topics in Biological Science
BIO 612 Cytology & Cytogenetics
BIO 616 Biogeography
BIO 625 Plant Morphogenesis
BIO 645 Vertebrate Physiological Ecology
BIO 647 Advanced Animal Ecology
BIO 690 Graduate Seminar
BIO 691 Thesis Research

Since 1935, Master of Arts in Education and Master of Science degrees have been granted to the following who completed the courses in biology required for the respective degrees.

1948 M.A.Ed.
Bevins, Cephas E.

1949 M.A.Ed.
Asher, Dill Blevins
Carmack, Eldred E.

1950 M.A.Ed.
Taylor, Richard R.

1951 M.A.Ed.
Bindel, Henry J.
Fleu, Frank W.

1952 M.A.Ed.
Abney, Jessie Floyd

1953 M.A.Ed.
Bright, Horace Winston
Strong, William Everett

1958 M.A.Ed.
Patterson, Opal Ballou

1962 M.A.Ed.
VanHook, Harold Benton

1963 M.A.Ed.
Moberly, Ann Foley

1965 M.A.Ed.
McGlasson, Mary M.
Rundall, Richard A.

1966 M.A.Ed.
Lawson, Robert Samuel

1967 M.A.Ed.
Howard, Frank Bertram

1968 M.A.Ed.
Blankenship, Billy Shaw
Carr, Alvin Ray

M.S.
Howell, Jerry Fonce Jr.

1970 M.A.Ed.
Morris, Clifford Ray
Riggens, Karen

M.S.
Baker, Edd C.
Cupp, Paul Vernon Jr.
de les Reyes, Maria
Jones, Jerry K.
Snyder, James W.
Thurman, Margaret M.

1971 M.A.Ed.
Bright, Venita
Cameron, Billy Lee
Haury, Sylvia Patrick
Henderson, Audrey Martin

M.S.
Buemi, Dennis Phillip
Campbell, Roger Darrel
Crockett, David Roger
Domir, Subbash Chandra
Keen, William Robert
Shopa, Gary Stephen
Singh, Bhagwan

1972 M.A.Ed.
Flynn, Robert Charles
McAninch, Vivian Durham
McReynolds, John Spencer
Mountjoy, Marcella Faulkner
Niemeyer, Kenneth Edwin
Polly, Dan Mitchell
Roller, Ann Morgan

M.S.
Brand, Ann Sibley
Chang, Anna Peichu
Creusere, Frederick Michael
Fryman, Sandra Faye
Garling, Donald Lee Jr.
Hawk, William Harold
Haynes, Charles Marion
Kock, Charles Lewis
Sasser, Lynn Dell

1973 M.A.Ed.
Coffey, Charles Franklin
Fugate, Douglas Wayne
Sugantharaj, Devadas George

M.S.
Collins, Kathleen Ann
Kennedy, Jennifer Lee
Moore, George Wilson III
Mumme, John Stephen
Nutini, David Louis
Robinson, Carl C.
Schuster, Guenter
Vernon, Michael Walter
White, Glenn E.
Young, John Allen

1974 M.A.Ed.
Grant, Danny C.
Lester, Dennis Crawford
Morris, Patricia Ann
Otte, Dana B.

M.S.
Clinger, Charles G.
Crisp, Catherine Barrett
Crisp, Norman Harley
Heuer, David Edward
Huang, Min-Chi*
Kongfoo, Unchalee
Lonneman, Phyllis Kay
Mullaney, Edward Joseph
Phillips, John Howard II
Rench, John F.
Rose, Bruce L.
White, B. Jeanne
Wolfe, George William

*Completed work in Dec. 1974

Core curriculum. Some of the newer faculty had recently come from universities which had made use of a core curriculum. In these institutions a few basic integrated courses had been assembled from materials selected from several different standard courses. An attempt was made to introduce this core curriculum concept for biology majors at Eastern. A thorough study was made and plans formulated, but not all faculty agreed to this concept. There was agreement, however, on listing together certain existing courses as a group that should be required for all majors. In 1972, this listing or group of courses was referred to as a "core" of the curriculum for a biology major.

Botany
Zoology
Principles of Biology
Genetics
Seminar

And one course from each group:
(a) Microbiology, comparative anatomy, plant anatomy, plant morphology
(b) Plant physiology, general physiology

At first the "core" differed basically from the curriculum used in previous decades only in that it did not require a field type course. However, a field course was

usually required by the counsellor in addition to the "core" and later, by 1974, it was listed as a requirement except when waived by the chairman of the department.

Faculty. Four new faculty members were employed between 1969 and 1974.

Dr. Robert O. Creek, 1970- ----. B.S., M.S.; Ph.D., University of Arkansas.
Dr. John P. Harley, 1970- ----. B.A., M.A.; Ph.D., Kent University.
Dr. Richard Schaffer, 1970-1974. B.S.; Ph.D., Indiana University. (in Central University College)
Dr. J. Stuart Lassetter, 1973- ----. B.S., M.S.; Ph.D., Iowa State University.

Two faculty members, Dr. Eugene Schroeder and Dr. Richard Schaffer, resigned in 1974, and as mentioned in the preceeding chapter, Mr. Robert Larance was deceased in 1972. This left a net total of eighteen faculty teaching biology courses at Eastern by the summer of 1974. These are arranged in order of length of service (in parentheses) at Eastern.

(35) Dr. H. H. LaFuze
Botany, eugenics
(26) Mr. A. L. Whitt
Histology, microtechnique, ornithology, med tech hospital internship
(13) Dr. Sanford Jones
Physiology, endocrinology, instrumentation
(9) Dr. Donald Batch
Ecology, invertebrates, natural history of invertebrates, zoology
(9) Dr. Branley Branson
Fisheries, ichthyology, evolution, biogeography, quantitative biology, scientific literature in biology
(8) Dr. Thomas Keefe
Biological principles, economic plants
(7) Ms. Mary McGlasson
Zoology, entomology
(7) Dr. Ward Rudersdorf
Wildlife courses, conservation
(6) Dr. Wallace Dixon
Biological science (Central University College)
(6) Dr. Marvin Thompson
Mammalogy, wildlife courses, zoology

(6) Dr. Raymond Otero
Microbiology, clinical microbiology, immunology, pathogenics
(6) Dr. Dan Varney
Genetics, cytology, mycology, botany
(5) Dr. Edwin Hess
Chairman of department, physiology
(5) Dr. William Martin
Biological science (Central University College)
(5) Dr. John Williams
Comparative anatomy, conservation, human physiology
(4) Dr. Robert Creek
Plant science, microbiology, plant physiology, phycology
(4) Dr. John Harley
Animal science, physiology, cellular physiology, parasitoloty
(1) Dr. Stuart Lassetter
Botany, plant systematics, dendrology

Those with doctorate degrees represented 88 percent of the faculty in the Department of Biological Sciences.

The 1974 self-study. The self-study was made, as it was ten years earlier, in conjunction with the accreditation study conducted by the Southern Association of Colleges and Schools. The faculty appeared to disagree and be fractionated on several issues. The original report prepared from the contributions of the teaching faculty was long and detailed in which the faculty members revealed their opinions regarding the strengths and weaknesses within the department. The final report published by the department and the university provided a good description of the department and a summary of the situations which were reported to exist within the department in 1974.

Department of Biological Sciences Self-study Report, 1974

* * * * * * * * * * * * *

The present. At the conclusion of the 1973-1974 academic year which completes a century of higher education on Eastern's campus, the Department of Biological Sciences appears to be in a good state of health. Adequate space and equipment seems to be available for present needs; faculty are well trained and sensitive to student's needs; programs have been carefully planned; strong curricula have been developed with the student's welfare in mind; new programs are being considered; courses are being revised periodically; student enrollment is rapidly increasing; and faculty morale appears to be good.

Nevertheless, in reality, any department in any university may have some room for improvement as well as having its many strengths and good points. Eastern's Department of Biological Sciences is fortunate to have quality faculty capable of realizing, with the aid of its recent self-study and continuing re-evaluation, that strengths can yet be improved upon and that weaknesses can be removed or corrected. There remains only to effectively work to achieve these improvements in order for the department to meet future challenges and academic needs, and to thus help produce an even greater university.

LaFuza

A History Of Biology On The Campus Of Eastern Kentucky University 1874-1974.